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Editorials . . .

THE NEED FOR UNRESTRICTED GIFTS

It is imperative that in order for any institution to function in this society, it must have the necessary financial means to accomplish its ends. The Chicago Medical School has never been known as a wealthy school; in fact, quite the contrary. It is only within the past few years that the School, through its Endowment and Guarantee Funds, has reached the point where the economic resources permitted the establishment of satisfactory academic facilities. Despite such tremendous strides in the past, it is yet to remain for us to accomplish even greater progress.

In order for The Chicago Medical School to become a fully approved medical institution, much improvement must still be made, such improvement being mainly in the form of obtaining many more instructors for our students, both clinical and preclinical. Dean Sheinin estimates the cost of full-time clinical professors alone to amount to $150,000 per year. Although the Guarantee Fund is budgeted to be spent in the ensuing five years, there is a deplorable lack in finances necessary to support a teaching body.

The maintaining and adding of capable faculty members is becoming increasingly more difficult; therefore the projected increase in the number of faculty and in the necessary increase in the salaries makes it essential that unrestricted funds flow to the School. As Pres. Franklyn B. Snyder of Northwestern University stated in his report for 1946, despite its large assets, the University must have monies to spend on faculty salaries, etc., because those assets are restricted to designated purposes.

We must see to it that The Chicago Medical School advances to the heights of medical education, but that can only be accomplished by the inflowing monies which can be utilized to further heighten our standards.

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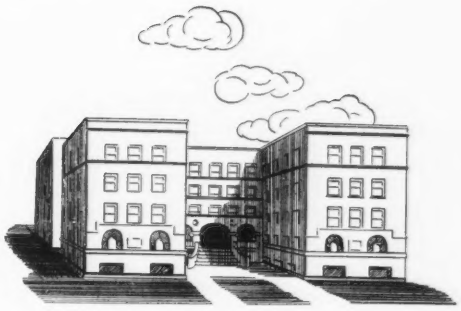

In this issue of The Quarterly (pg. 4), we are publishing an article by Dr. H. H. Beard, et al, of the Biochemistry Department, correlating a biological test with the clinical diagnosis of human malignancies. It is, in effect, a method of establishing the early diagnosis of cancer through a laboratory test utilizing the urine of the cancer patient. At the same time, another Professor of our Biochemistry Department, Dr. R. G. Roberts, and co-workers, announced their discovery of a new type of insulin, one injection of which is said to be effective for 34 hours. The possibility of an insulin with far longer lasting effects is not too far in the offing. The potentialities of these two experimental observations are startling in their clinical significance.

These facts are mentioned here, not merely because the research was performed in our School, but for the greater implications of the results and of the work itself. Throughout the annals of scientific progress, there is evident a historical pattern; that of contributions to knowledge emanating from little men and little places. We refer to little not as regards intellect or physical capacity but rather to the worldly concepts of fame, success, and reknown. Bits of knowledge are thus released, unimportant in themselves, but all integral parts of a natural system, and all building up to create wisdom. It is this wisdom that results by other little men who derive a resolution of that knowledge, by a kneading, a confirming to experience and logic; culminating in a Priestly, Newton, Einstein, or a Banting and Best. The Chicago Medical School, little in itself, also contributes.

CORRELATION OF A BIOLOGICAL TEST WITH CLINICAL DIAGNOSIS OF HUMAN MALIGNANCY: A PRELIMINARY REPORT

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Introduction

THE results of experimental cancer research have definitely shown that carcinogenic hydrocarbons (and many other substances), excessive sunlight, ultraviolet light, irradiated sterols, and bile acids, must be considered as potent carcinogenic substances in the animal body (1-19, 38, 56, 77) (Cf. 7, 9, 18, 38, 56 and 77 for literature review). For instance, Beard, et al (7) produced sarcomas and carcinomas on the eyes and ears of rats after 20 hours daily exposure for 6 months from a mercury arc lamp. Pizzolato and Beard (18) produced 4 tumors out of about 400 rats when the following substances were injected into the abdomen in the solid state: a fibrosarcoma from irradiated cholesterol, two anaplastic sarcomas, one each from cholesterol and from irradiated dehydrodesoxycholic acid, and a keratinizing squamous cell carcinoma from irradiated ergosterol. While these statistics are not impressive in themselves nevertheless the possibility that the malignant process can be initiated by an *excess* of the sterols and related substances in the body rests upon sound experimental evidence at the present time. It has also been shown by Fieser and Newman (20) and Cook and Haslewood (21) that methylcholanthrene, one of the most potent carcinogenic hydrocarbons, can be synthesized from the bile acids.

Dead horse smegma was used by Plaut and Kohn-Speyer since penile cancer is rather frequent in these species. The composition of the non-saponifiable fraction of the smegma was as follows: total fat 45% (fatty acids 32.2%; phosphatids, 3.9% total cholesterol 6% and cholesterol esters 2%). Eight hundred and fifty mice were used, 4:0 were treated with smegma and in 190 of these it was put into the skin tunnel and in 122 it was injected subcutaneously and in 88 the nonsaponifiable fraction of smegma was painted into the funnel or on the skin surface. No tumors were produced in the controls with cerumen which resembles smegma in being a skin product that is retained near the surface of the body. Results with the study were as follows: lung adenomas were found 15 times in sections of the treated mice and 2 times in the controls; lymphoid tumors and leukemia were 15 and 5; mammary carcinoma 21 in treated mice and 3 in 40 controls; 6 mice treated with smegma showed adenocarcinoma of the kidney and 1 papilloma, 2 hepatomas and 1 carcinoma of the liver and 1 inguinal rhabdomyosarcoma, as compared to 2 tumors in the controls, a hepatoma and a spindle cell carcinoma. At the site of treatment there were 4 papillary warts, 2 hornifying squamous cell carcinomas, 1 with an undifferentiated skin carcinoma and 1 with a spindle cell carcinoma with metastases. The percentage of positive cases was the *same* with the smegma and with its nonsaponifiable fraction. These results by Plaut and Kohn-Speyer are probably the first experimental production of cancer by external application of an external product of the animal body.

Several years ago Schabad in Russia began another interesting line of experimental cancer research (22-24). It was shown that benzene extracts of various normal and malignant tissues would, after injection, produce tumors in many animals. The active factor was found in the nonsaponifiable fraction of the extracts. Schabad's results have been confirmed and extended by a number of investigators (25-30). It is also generally believed that an endocrine imbalance is a factor in the malignant process (31). A large amount of detailed information on the appearance of tumors in experimental animals given estrogens has been published (56). Mammary, uterine, hypophyseal, testicular, lymphoid and osteogenic tumors appear in animals of some species and strains when estrogens are administered for prolonged periods. In a recent publication Wachtel (32) produced sarcomas and carcinomas in 27 per cent of the 67 rats used after the injection of lipid extracts of the whole pituitary glands of cattle, (Cf. 57 for literature review). Selle, et al, (33) showed that transplantation of histologically normal liver tissue

from mice bearing methylcholanthrene tumors would produce tumors in other animals.

Rhoads, et al (34) isolated 33 ketosteroids from different types of human urines. About 60 per cent of the steroid fraction consists of androsterone and its isomer, alpha hydroxyacetiocholanolone, which are present in a ratio of 1:1. The urines of pregnant women and patients with adrenal hyperplasia and adrenal cortical tumors reveal not only the presence of a great number of ketosteroids not found in normal urine but also a distinct pattern in their distribution. In the urines of certain cancer patients ketosteroids are present which are not found in normal urines. Mason and Kelper (35) and Hirschmann and Hirschmann (36) showed that the excretion of excessive amounts of dehydroisoandosterone was characteristic of adrenal cortical tumors. Stelle et al (37) showed that no tumors were produced in rats with benzene extracts of malignant urines, but they were produced if butyl alcohol extraction followed benzene extraction of the urines.

In view of the above results it is reasonable to believe that the malignant patient excretes some substance (sterol or protein-sterol) in the urine which may be the cause, result or both of the malignant process. Some time ago we extracted malignant urines with alcohol and ether with the idea of producing tumors in rats after the injection of these extracts. However, in studying these animals from 1 to 4 days after injection of the extracts, an enlargement of the spleen and/or gonads was always present. It was also evident from this result that these findings constituted a biological test for malignancy which, as later work to be discussed below will show, is highly specific for *any type of human malignancy* so far tested. In addition, results will be given to indicate the possible nature of the malignant process in the body. We have made many tests of normal, malignant and nonmalignant urines as well as a number from patients whose diagnosis was unknown to us at the time the test was made. Results are given below.

TABLE 1

Showing the Method of Calculation of Results

Urine No.		Rat	Spleen	Gonads	R/S	R/G	Decrease R/S	Decrease R/G	Clinical Diagnosis	Biological Test
		Gm	Mgs	Mgs			%	%		
		120	630	665					Control	
		115	455	670					Rats	
		122	620	680						
	Av.	119	568	672	210	177				
13		130	710	710					Normal	
		126	605	800					Urine	—
		111	425	540					Extract	
	Av.	122	580	683	210	179	0	0		
		115	670	865					Control	
		115	689	845					Rats	
		115	675	855						
	Av.	115	678	855	169	134				
24		120	940	2500					Ca of the	
		120	775	2065					Breast	
		109	1015	1760						
	Av.	116	910	2108	128	55	24	59		+

Experimental

From 500 to 1000 cc. of urine were collected in a bottle contatining about 50 cc. of alcohol. All samples were kept in the ice chest until they

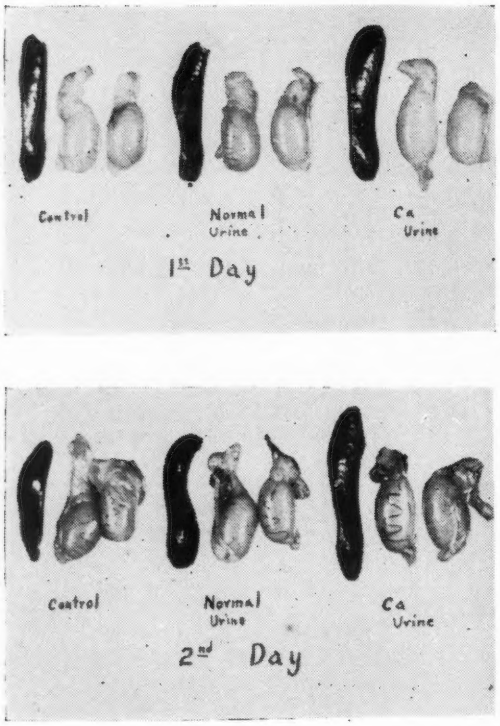


Figure 1

were extracted. The small Koch estrogen extractor was used. The sample was poured into the extractor flask and ether was added until its level was just below that of the side arm of the flask. Then 150 cc. each of alcohol and ether were added to the Erlenmeyer flask which was connected to the extractor and heated on an electric hot plate for 2 days. The process was then repeated for another 2 days with fresh solvents. At the end of 4 days all extracts were collected and concentrated under reduced pressure below 50° C and the water residues were diluted so that 1 cc was equivalent to 50 cc of the original urine. Then 2 cc of the extract was injected intraperitoneally in the immature rat. Three or four animals received the extracts, and a similar number of comparable animals of the same sex, approximate age, and body weight, not receiving injections, were used as the controls. All animals were killed at the end of 2 days after injection with nembutal; the weight of the rat was made on a laboratory balance, and that of the spleen and gonads on an analytical balance. The body weight was then divided by that of the spleen and then by that of the gonads thus obtaining the R/S and R/G ratios in the control and experimental animals. A decrease in either or both of these ratios from 20 to 76 per cent below these same ratios in the controls serves as the biological test for malignancy. Decreases of less than 20 per cent were considered negative.

The urines were secured through the cooperation of Doctor E. J. Chesrow, Director of Oak Forest Infirmary, Oak Forest, Illinois and Doctor S. M. Wolffson of the Department of Surgery, The Chicago Medical School and the Fantus Clinic of Cook County Hospital. We wish to thank these clinicians for their continued interest and help in securing the urines used in this study.

Results

In the females the organs used were the ovaries, uterus and tubes and in the male the testes and epididymis. The following correlation coefficients were calculated in the control animals:

r. (body weight — spleen) + 0.25 ± 0.00 (520 rats)*
r (body weight — female gonads) — 0.56 ± 0.03 (303 rats)
r. (body weight — male gonads) + 0.62 ± 0.02 (242 rats)

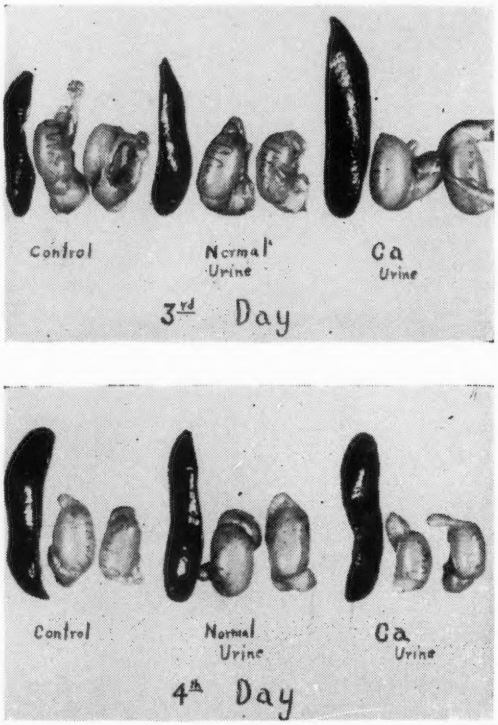


Figure 1 (continued)

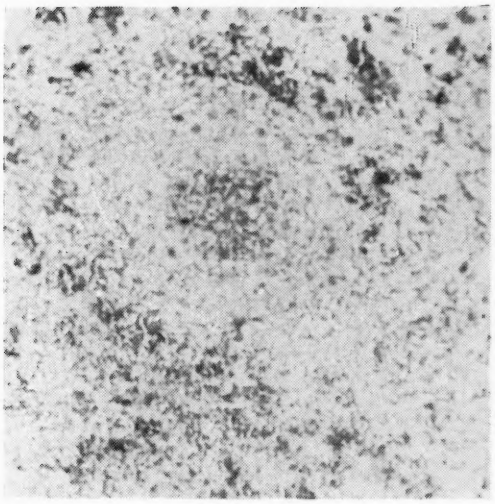


Figure 2

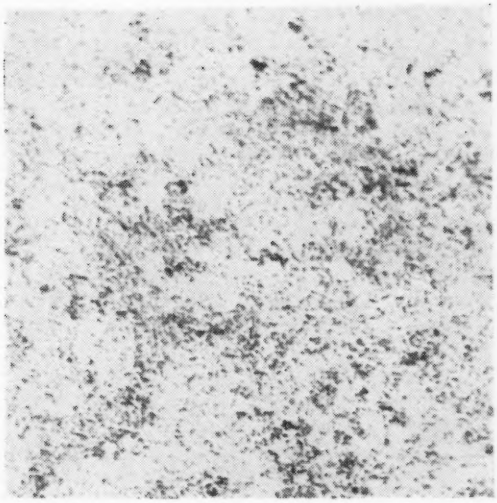


Figure 3

In view of the negative results in the first two cases it is necessary for each investigator to use his own animals as controls in making the test, since no standard weights of organs for a given body weight can be used at this time.

The data listed in Table 1 show the method of calculation of the decrease in the ratios from those of the controls in the case of an extract from a normal urine and one from cancer of the breast. Data listed in Table 2 show only a slight decrease in the ratios from 1 to 4 days after injection of normal urine extracts while the decreases in the case of an extract from bronchogenic Ca urine ranged from 33 to 72 per cent below those (R/S) of the controls. The gross appearance of the organ is seen in Fig. 1. Fig. 2 shows the normal spleen with intact follicules and with normal proportion between lymphoid tissue and blood. Fig. 3 shows results from the bronchogenic Ca. urine extract. There is disruption of the splenic architecture with intense hyperemia. Fig. 4 shows the testis of the immature rat. A normal amount of interstitial tissue and normal tubules are present. Fig. 5, from the same cancer extract, shows hyperplasia of the tubules with intense spermatogenesis.

The results shown in Table 3 indicate that 39 out of 40 known malignant urine extracts gave a decrease in the ratios from 20 to 76 per cent below those of their controls. These results were

* In a personal communication from Miss Margaret M. Seitner, who has studied the changes in the weight-spleen of the albino rat from birth to senescence and whose MSS is now in press, it was stated "The ratio of the spleen weight was low at birth, rose rapidly to its highest peak at 21 days of age, then fell rather rapidly through 150 days of age during which time the spleen was attaining its greatest weight."

TABLE 2

Four Day Study of a Normal and Malignant Urine
(1 to 4 days after injection)

	Controls		Normal Urine				Bronchogenic Ca			
					Decrease				Decrease	
	R/S	R/G	R/S	R/G	R/S	R/G	R/S	R/G	R/S	R/G
					%	%			%	%
1	228	84	236	73	—	—	154	62	33	19
2	239	70	223	66	7	5	68	51	72	27
3	220	57	231	60	—	—	100	55	55	—
4	92	73	156	58	—	20	61	93	34	—

TABLE 3

Malignant Urines
(Average Results for all animals)

No.	Decrease R/S	Decrease R/G	Clinical Diagnosis	Biol. Test	No.	Decrease R/S	Decrease R/G	Clinical Diagnosis	Biol. Test
	%	%	Ca of			%	%	Ca of	
1	27	—	Rectum	+	21	41	53	Stomach	+
2	27	55	Rectum	+	22	6	52	Stomach	+
3	28	49	Rectum	+	23	11	26	Stomach	+
4	47	33	Rectum	+	24	37	41	Lungs	+
5	35	12	Rectum	+	25	42	42	Lungs	+
6	28	27	Rectum	+	26	51	65	Bronchogenic Ca.	+
7	0	37	Rectum	+	27	6	47	Esophagus	+
8	55	33	Colon	+	28	37	25	Esophagus	+
9	0	49	Sigmoid	+	29	13	28	Esophagus	+
10	27	36	Bowel	+	30	49	0	Larynx	+
11	72	24	Breast	+	31	58	24	Mal. epithelioma of face	+
12	48	27	Breast	+	32	12	37	Mal. epithelioma of face and eye	+
13	20	7	Breast	—	33	15	57	Right Orbital	+
14	24	59	Breast	+	34	54	76	Prostate	+
15	17	75	Breast	+	35	0	42	Prostate	+
16	17	38	Breast	+	36	38	71	Mal. adeno-Ca. with axil. metas.	+
17	39	46	Breast	+	37	36	61	Mediastinum metas. to spine	+
18	41	36	Stomach	+	38	60	22	Hepatoma	+
19	17	39	Stomach	+	39	34	10	Left eye	+
20	14	66	Stomach	+	40	55	23	Metas. Ca. with axil. metas.	+

usually obtained 2 days after injecting the extracts. In other cases, however, the animals were sacrificed at the end of 4 days after injection of the malignant urine extracts at which time the test may be negative. The average per cent increases in the weight of the organs over those of the controls were: spleen, 39, male gonads, 55 and female gonads, 72 (Table 4).

The results obtained with 26 normal urine extracts are listed in Table 5. The maximum drop was only 12 per cent in one case. Therefore, a drop of less than 20 per cent in the ratios is considered as a negative test. The real value of the test is shown in the data of Table 6 where results for 40 urines are listed from patients whose diagnosis was unknown to us at the time the test was made. There were 9 positive tests, one each from a case of cancer of the breast, rectum, prostate, stomach, colon and adenocarcinoma with metastasis, and 3 in leukemia, while the remaining 31 cases were non-malignant with negative tests in every case. The significance of the results for leukemia are uncertain until more cases have been studied.

In a further study 4 malignant urine extracts were injected into normal and hypophysectomized rats. The Ingle technique was used and later examination of the animals showed that the complete gland was removed in each case. Two of the freshly extracted urines were allowed to stand in the ice chest for 4 months and the two others had stood for a similar length of time since they were originally tested. The results shown in Chart 1 indicate that the malignant urine extracts gradually lose their potency on standing. The average decrease in the R/S ratios in the fresh extracts was 47 per cent as compared to 17 per cent in the controls. These values for the R/G ratios were 61 and 24 per cent. Of much further interest was the fact that the biological test was negative in the hypophysectomized rat. The significance of this observation will be discussed below.

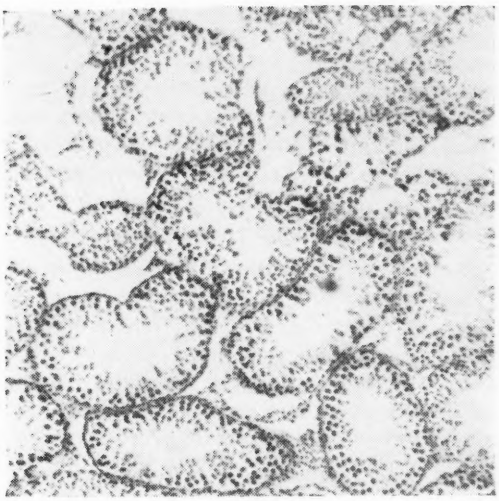


Figure 4

Figure 5

Discussion

Stern and Willheim (38) reviewed 551 papers on "Tumor Diagnostics" and concluded that a reliable test for human malignancy had not been found up to 1943. A recent editorial in the Journal of the American Medical Association stated in this connection (39): "Many tests for cancer have already been devised. Some use chemical, immunologic or serologic techniques. To date they have not attained wide acceptance because the errors positive or negative or both are too great. Efforts to find a test should not be relaxed because of failures in the past. While it may be too much to hope that some test may be discovered that will indicate which persons are potential cancer bearers, it is not unreasonable to believe that a simple method for detecting presymptomatic cancer cases will be discovered by an intensified and concerted effort."

After we had extracted and tested about 20 known malignant urines the report of Professor Roffo reached us (40). Using the same technique as ours he claims positive results in 1000 malignancies and negative results in nonmalignant cases. Pregnancy urines also give a positive test so this condition must be ruled out in making the test. The hormone was stated to be a "steroid E". Urines from rats bearing tumors also gave a positive test. Roffo's hormone has estrogenic effects in female and androgenic effects in male rats. The spleens were enlarged from 2 to 3 times. Carratala (41) in Roffo's institute, observed this splenic hyperplasia after testing the blood serum of 25 cancer patients. Four days after injection the spleen weight of the animals ranged from 1/70 to 1/185 of the body weight as compared to 1/185 to 1/400 of the body weight in the controls. Krebs and Gurchot (42) con-

TABLE 4

Showing Average Degree of Hypertrophy of Organs

Urines	Body Weight	Spleen	Spleen Increase	Gonads Male	Gonads Male Increase	Gonads Female	Gonads Female Increase
	Gm.	Mg.	%	Mgs.	%	Mgs.	%
40 (Controls; No injections) (130 rats)	107	483		1283		212	
40 (Cancer Urine Extracts) (174 rats)	111	673	39	1991	55	365	72

firmed Roffo's results in their cases. Esculier (43) stated that Roffo's steroid E was identical with the substance he extracted with ether from the blood serum of malignant patients. Courrier and Oberling (44) observed growth of the endometrium and enlargement of the prostate when cancer urine extracts were injected into immature rats. Millan and Barano (45) observed that the gonadotrophin content of the blood and urine of cancer patients was increased and they observed a positive Friedman reaction in these cases.

The question now arises, is the malignant hormone identical with the gonadotrophic hormone responsible for the Ascheim-Zondek pregnancy test? (Cf. 55 for literature review). This question cannot be answered at the present time. Zondek (46) employing female mice as in the diagnosis of pregnancy, first demonstrated the presence of a gonadotrophic hormone in the urine of a man suffering from teratoma testes. Heidrich, et al, (47) reported finding 50,000 mouse units per liter of urine in a case of chorionepithelioma of the testes. Ferguson (48) stated that the hormone output of testicular tumors could be closely correlated with their histological structure indicating that a fairly accurate diagnosis could be made from a bioassay of the urine. This view was also stated by Hinman and Powell (49). Twombley, et al (50) stated that while repeated hormonal tests are of little value in following the clinical course, nevertheless the test should be made in all cancer cases in order to determine whether or not the tumor is producing chorionic gonadotrophin since this is a bad prognostic sign. Montpellier (quoted by McDonald (51)), stated that a seminoma could be distinguished from chorionepithelioma by the Ascheim-Zondek test. Hamburger (quoted by Twombley (50)), stated that chorionepithelioma and adenocarcinoma urines contained chorionic gonadotrophin and these results were confirmed by Twombley.

Miering and Zwarenstein (52) employed the Shapiro-Zwarenstein pregnancy test using the South African clawed frog. The test was positive in 2 cases of testicular tumor. Weisman and Coates (53) using this same species of frog observed after 6 hours extrusion of the ova after injection of 1-10 and 1-100 dilution of the urine in 6 cases of hydatidiform mole and stated that this is a specific test for this condition and could be used as a pre-operative diagnostic procedure. Gurchot and Krebs (54) obtained egg extrusion in the toad after injection of 1 cc of the concentrate of 800 cc of urine from a case of nongenital cancer in men. Francis (55), in a review of the literature on malignant disease of the testicles, stated that the Ascheim-Zondek test had been made in 300 cases, as follows: in seminoma it was below 1000 mouse units per liter, and in chorionepithelioma, adenocarcinoma and malignant teratomas of all types values from 1000 to 3 million mouse units per liter were found, depending upon the severity of the case.

It is also well known that benign and malignant tumors of the endocrine glands can increase

TABLE 5

Extracts of Normal Urines

Urine No.	Rat	Spleen	Gonads	R/S	R/G	Decrease R/S	Decrease R/G	Biological Test
	Gms	Mgs	Mgs			%	%	
C	134	358	631	374	212			
1	125	285	642	439	195	—	8	—
C	142	382	419	372	339			
2	137	256	447	535	306	—	10	—
C	108	678	85	159	1271	—		
3	106	572	95	185	1116	—	12	—
C	127	326	651	390	195			
12	122	322	648	378	188	3	4	—
C	113	815	1754	139	65			
19	121	920	1788	132	68	5	—	—

30 other normal urine extracts showed no decreases in ratios.

TABLE 6

Unknown Diagnoses

No.	Decrease R/S	Decrease R/G	Clinical Diagnosis	Biol. Test	No.	Decrease R/S	Decrease R/G	Clinical Diagnosis	Biol. Test
	%	%				%	%		
1	34	—	Breast	+	21	—	—	Lymphoblastoma	—
2	—	37	Rectum	+	22	—	—	Diabetic gangrene	—
3	45	—	Prostate	+	23	8	—	Diabetic gangrene	—
4	41	—	Stomach	+	24	18	—	Leukemia	—
5	—	—	G.I. upset	—	25	20	—	Leukemia	—
6	—	4	Normal Urine	—	26	33	—	Leukemia	+
7	—	12	Pulmonary T.B.	—	27	—	—	Diabetes	—
8	57	28	Adeno Ca of axilla with metas	+	28	—	—	Diabetes (gangrene of toe)	—
9	10	0	Loss of weight & constipation	—	29	7	12	Decubitus on back	—
10	—	—	Tabes	—	30	—	14	Varicose veins & ulcers	—
11	—	—	Cardiovascular disease	—	31	—	—	Varicose veins & ulcers	—
12	—	—	Spinal injury	—	32	—	—	Lues	—
13	8	—	Multiple sclerosis	—	33	—	18	Cirrhoses of liver	—
14	—	—	Multiple sclerosis	—	34	—	—	Liver abscess	—
15	—	—	Rheumatoid arthritis	—	35	—	—	Multiple sclerosis	—
16	31	—	Malignant melonoma	+	36	8	—	Rheumatoid arthritis	—
17	36	—	Stem cell leukemia	+	37	—	—	Pulmonary T.B.	—
18	—	—	Multiple myeloma	—	38	—	—	Rheumatoid arthritis	—
19	34	22	Ca of colon	+	39	—	5	Tabes	—
20	—	—	Lues	—	40	—	—	Bronchiectasis	—

the production of different hormones as shown in cases of hyperthyroidism, hyperparathyroidism, hyperinsulinism and in acromegaly. Gardner (56) reviewed the literature on the production of tumors with steroid hormones and Selye (57) reviewed the literature on the role of the pituitary in tumorigenesis. Selye stated that while there is no definite evidence of any direct action of the pituitary hormones on tumorigenesis there is well established evidence that, through its effect on the steroid producing glands, the pituitary may exert an important indirect effect upon the growth of tumors and on the condition of the hosts' tissues. It is also interesting that the growth of tumors is much slower in the hypophysectomized than in the normal animal (58-64).

Some preliminary results of our own indicate that the biological test is negative in the hypophysectomized rat (65) (Chart 1). It is, therefore, possible that the malignant hormone present in the urine extracts stimulates the pituitary to produce increased amounts of its gonadotrophic hormones which are then responsible for the increase in weight, hyperemia of the spleen and histological changes observed in the gonads. We believe that the continued injection of these malignant urine extracts may result in the production of tumors in animals (Cf. 44) and we are studying this problem at the present time. On the other hand, it is possible that larger doses of a given gonadotrophic hormone might, even in the hypophysectomized rat, still cause hypertrophy in the gonads. For instance, Fevold

et al (66) injected massive doses of the gonadotrophic hormone excreted from a case of chorionepithelioma and observed increases from 9 to 14 fold in the weight of the ovaries of their animals. In the hypophysectomized animals 2000 U caused marked follicular and lutein development. Wachtel (32, 67) has produced tumors in rats with whole pituitary extracts of cattle and with extracts of gastric carcinoma, breast carcinoma and fibrosarcoma. He stated that the lipid carcinogenic substances, probably of hormonal character, can also be extracted from certain organs. The name of "Boardin" was suggested for this substance.

In a review of the literature on the metabolic aspects of cancer in 1935, one of us (H.H.B.) stated that the growth of the fetus and tumor are analogous to a certain degree (31). Both may be considered as parasites in this connection. The growth of the fetus, however, is controlled by endocrine balance while that of the tumor is uncontrolled by endocrine imbalance. Much of the above evidence points strongly to an *overproduction of gonadotrophic hormones* as the direct causitive agent in malignancy. In cases of testicular tumors in man, Nathanson (68) described the excretion of two types of gonadotrophic hormone, one similar to the chorionic type normally found in pregnant urine and the other was a hypophyseal gonadotrophin similar to that found in human beings after castration or in those who have passed the menopause. It is, therefore, easy to understand the overproduction of these gonadotrophic hormones in some specialized types of tumors, such as the chorionepitheliomas, adenocarcinomas and malignant teratomas, but why should all malignant urines so far tested give a positive biological test?

There are three possibilities in this connection. First, in nonpregnant cases chorionic gonadotrophin is ruled out. Second, there is no evidence at the present time that all malignant tumors produce chorionic tissues (Cf. 70) with the production of chorionic gonadotrophin, and third, by a process of elimination, our results show that the malignant hormone stimulates the pituitary to produce increased amounts of gonadotrophins which must then be responsible for the biological test.

Three papers have recently appeared which also throw much light on the above question. Li and Gardner (69) produced granulosa cell tumors in castrated male and female rats bearing intrasplenic (ovarian) transplants. The histological characteristics of these tumors were very similar to those of the ovary produced by other workers with X-rays. From this fact they stated that the same mechanism, namely, gonadotrophic overstimulation, might be responsible for the production of the tumors under both circumstances. Brewer (70) found no chorionic tissue in 2 cases of testicular tumors but did find it in the metastases of both cases. Gurchot, Krebs and Krebs (71) transplanted normal human placental tissue into the anterior chamber of the rabbit's eye where it grows readily and is serially transplantable. It also produces chorionic gonadotrophin and syncytial hormones. These results indicated that the normal trophoblast of pregnancy under these conditions behaves like a malignant tumor grown in a similar medium. They stated "our experiments, as well as a great many other data, suggest that *all malignant tumors, regardless of their protean character, are fundamentally trophoblastic.* (Italics ours.) They also stated that the trophoblast was violently malignant, in fact the most malignant of all tumors. According to Boyd (72) chorionepithelioma appears as a simple overgrowth of normal trophoblast cells. The pregnancy trophoblast is the only "normal" tissue known to metastasize regularly (73, 74, 75). Gurchot, et al, suggested that if the trophoblast cell and the cancer cell are one, the normal trophoblast of pregnancy should be indistinguishable from cancer at least in some cases. (Cf. Fidler, (76)).

If future work confirms the validity of the biological test of human malignancy some application of its use would be (1) in supplementing clinical and pathological diagnosis of malignancy, (2) in testing for the presence or absence of metastases after treatment (3) in controlling hormonal therapy in cancer of the breast and prostate, and (4) in detecting presymptomatic cancer bearers before clinical diagnosis reveals the presence of a tumor, a possibility of much importance in any cancer control program.

Summary

Urines from normal individuals, nonmalignant and malignant patients, and from patients whose diagnosis was unknown to us at the time the test was made, were extracted twice with alcohol

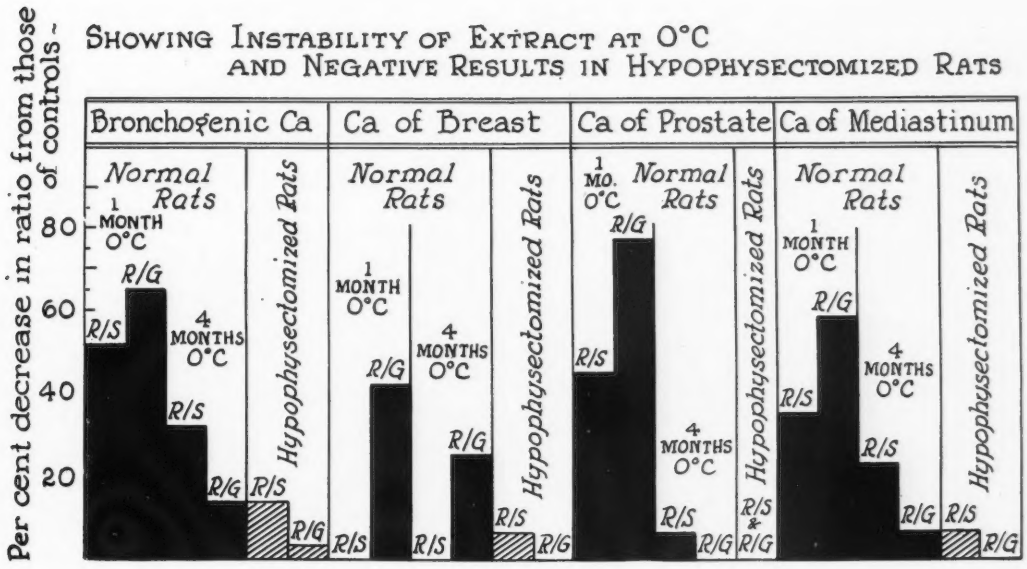


Chart 1

and ether in the small Koch estrogen extractor and these solvents were concentrated off under reduced pressure. The water residues were injected once in normal and, in some cases, in hypophysectomized rats. The results obtained were as follows:

1. Thirty-nine out of 40 known malignant urines gave a positive biological test (R/S and R/G decreases from 20 to 75 per cent below these same ratios in the controls).

2. Increases in the average weight of the spleen and gonads in these cases ranged from 32 to 72 per cent over the average weights of the control organs.

3. All urine extracts from normal individuals and non-malignant patients gave negative tests.

4. In 35 urines from patients whose diagnosis was unknown to us there were 6 positive tests in 6 malignancies, and 3 in leukemia, while the other 26 urines were from nonmalignant patients and gave negative tests in each case.

5. In normal immature rats the urine extract from a case of bronchogenic carcinoma produced an intense hyperemia of the spleen and hyperplasia and intense spermatogenesis in the testes.

6. The malignant urine extracts lose about 60 per cent of their ability to produce the biological test after standing in the ice chest for 4 months.

7. The biological test is negative in the hypophysectomized rat.

8. All malignant urines so far tested by ourselves (with 1 exception) and others contain a substance "X" (steroid E of Roffo) which is evidently sterol or protein-sterol in nature, which stimulates the rat pituitary to produce increased amounts of another substance "Y" (Boardin of Wachtel), which is then responsible for the results of the biological test for human malignancy. (It is also possible that a synergism between X and Y might be responsible for the disease, X, the malignant hormone, initiates the process and Y causes the continued growth of the tumor.)

9. The results were discussed in relation to the Ascheim-Zondek test for pregnancy and of the trophoblast and gonadotrophins to malignancy.

10. If the validity of the biological test should be confirmed by others some of its possible applications to clinical medicine and to the cancer control program were indicated.

We wish to express our thanks to the following students and colleagues for their help in securing the urine specimens: J. J. Mera, S. H. Kaplan, A. Glicksman, J. Zingher and L. J. Finkell and to Doctor Philip Pizzolato of the Veterans Hospital, New Orleans, La.

BIBLIOGRAPHY

1. Roffo, A. H., Bol. Inst. Med. Exp., No. 36, 353, 1934.
2. Roffo, A. H., Bol. Inst. Med. Exp., No. 33, 417, 1933.
3. Roffo, A. H., Bol. Inst. Med. Exp., No. 46, 589, 1938.
4. Roffo, A. H., Bol. Inst. Med. Exp., No. 46, 657, 1938.
5. Roffo, A. H., Bol. Inst. Med. Exp., No. 48, 407, 1939.
6. Roffo, A. H., Bol. Inst. Med. Exp., 18, 929, 1941.
7. Beard, H. H., Boggess, T. A. and von Haam, E.: Am. J. Cancer, *27*, 257, 1936.
8. Knudsen, A., Sturgis, S., and Bryan, W. R.: J. Biol. Chem., *128*, 721, 1939.
9. Blum, H. F.: J. Nat'l Cancer Inst., *1*, 397, 1940.
10. Burrows, H., and Mayneord, W. V.: Am. J. Cancer, *31*, 484, 1937.
11. Polettini, B.: Tumori, *12*, 101, 1938.
12. Waterman, N.: Δ3, 5, cholestadiene from cholestery loleate and its bearing upon the formation of carcinogenic substances in heated fate, Nature, *144*, 246, 1939.
13. Waterman, N.: Acta Cancerologica, *2*, 375, 1936.
14. Bachman, W. E., Cook, J. W., Dansi, A., de Worms, C. G. M., Haslewood, G. D. A., Hewett, C. L. and Robinson, A. M.: Proc. Roy. Soc., London, sB123, 343, 1937.
15. Ghiron, V.: Boll. atti. Acad. med. Roma, *64*, 134, 1938.
16. Cook, J. W., Kenneway, E. L., and Kenneway, N. M.: Nature, *145*, 627, 1940.
17. Law, L. W.: Proc. Soc. Exp. Biol. and Med., *47*, 37, 1941.
18. Pizzolato, P., and Beard, H. H.: Exp. Med. and Surg., *3*, 95, 1945.
19. Hartwell, J. L.: Bull. Nat'l Cancer Inst., 1941.
20. Fieser, L. F. and Newman, M. S.: J. Amer. Chem. Soc., *57*, 961, 1935.
21. Cook, J. W. and Haslewood, G. D. A.: J. Chem. Soc., 428, 1934.
22. Kleinberg, H. E., Neufach, S. A. and Schabad, L. M.: Am. J. Cancer, *39*, 463, 1940.
23. Kleinberg, H. F., Neufach, S. A. and Schabad, L. M.: Cancer Res., *1*, 853, 1941.
24. Schabad, L. M.: Cancer Res., *5*, 405, 1945.
25. Steiner, P. E.: Cancer Rec., *2*, 425, 1942.
26. Steiner, P. E.: Am. J. Cancer, *39*, 489, 1940.
28. Hieger, I.: Am. J. Cancer, *39*, 496, 1940.
29. Menke, J. F.: Cancer Res., *2*, 786, 1942.
30. Aptekman, P. M., King, H. D. and Lewis, M. R.: Cancer Res., *3*, 856, 1943.
31. Beard, H. H.: Am. J. Cancer, *56*, 1143, 1935.
32. Wachtel, H. K.: Sci., *103*, 556, 1946.
33. Selle, W. A., Brindley, M. D. and Spies, J. W.: Cancer Res., *1*, 614, 1941.
34. Rhoads, C. P., Dobriner, K., Liberman, S. and Fieser, L. F.: J. Clin. Invest., *23*, 932, 1944.
35. Mason, H. L. and Kelper, J. Biol. Chem., 235, 1947.
36. Hirschmann, H., and Hirschmann, F. B.: J. Biol. Chem. *167*, 7, 1947.
37. Stelle, R., Koch, F. C., and Steiner, P. E.: Cancer Res., *1*, 614, 1941.
38. Stern, K., and Willheim, R., The Biochemtstry of Malignant Tumors, Reference Press, Brooklyn, N.Y., 1943.
39. Editorial, J. Amer. Med. Ass'n, *132*, 284, 1946.
40. Roffo, A. H., Bol. Inst. Med. Exp., No. 65, 419, 1944.
41. Carratala, A. T., Bol. Inst. Med. Exp. No. 64, 204, 1944
42. Krebs, E. T. and Gurchot, C., Sci., *104*, 302, 1946.
43. Esculier, J., Arch. Uraguay med. Cirg. y. especial, (Montivedeo), *26*, 30, 1945.
44. Courrier, R., and Oberling, C., Bul'. Soc. Anat, Paris, *20*, 724, 1923.
45. Millan, J. M., and Barano, A. C., Semana med., *2*, 627, 1944.
46. Zondek, B., Klin. Wochnschr, *11*, 274, 1932.
47. Heidrich, L., Bietr. z. klin. Chir., *150*, 349, 1930.
48. Ferguson, R. S., J. Urol., *31*, 397, 1934.
49. Hinman, F. and Powell, T. O., J. Amer. Med. Assn., *110*, 188, 1938.
50. Twombley, G. H., Temple, H. M. and Dean, A. L., J. Amer. Med. Assn., *118*, 106, 1942.
51. McDonald, S. Jr., Am. J. Cancer, *34*, 1, 1938.
52. Miering, D. R. and Zwarenstein, H., J. Clin. Endocrinology, *6*, 434, 1946.
53. Weisman, A. I., and Coates, C. W., J. Clin., Endocrinology, *6*, 466, 1946.
54. Gurchot, C., and Krebs, E. T. Jr., J. Clin. Endocrinology, *6*, 519, 1946.
55. Francis, R. S., Brit. J. Surg., *33*, 173, 1945.
56. Gardner, W. U., Surgery, 16, 8, 1944.
57. Selye, H., Surgery, *16*, 33, 1944.
58. Ball, H. A., Samuels, L. T. and Simpson, W., Am. J. Cancer, *16*, 351, 1932.
59. Samuels, L. T., Ball, H. A., and Simpson, W., Am. J. Cancer, *18*, 380, 1933.
60. Samuels, L. T. and Ball, H. A., Am. J. Cancer, *26*, 547, 1936.
61. Ball, H. A. and Samuels, L. T., IV., Am. J. Cancer, *32*, 50, 1938.
62. Reiss, M., Druckrey, H. and Hochwald, A., Klin. Wchnschr., *12*, 1049, 1933.
63. Franseen, C. C., and McTiernan, C., Am. J. Cancer, *26*, 106, 1936.
64. Kortweg, R., and Thomas, F., Am. J. Cancer, *37*, 36, 1939.
65. Beard, H. H., Halperin, B., and Libert, S. A., Science, 105, 2731, 1947.
66. Fevold, H. L., Fiske, V. M., and Nathanson, I. T., Endocrinology, *24*, 578, 1939.
67. Wachtel, H. K., Nature, *158*, 98, 1946.
68. Nathanson, I. T., New Eng. J. Med., 231, 764, 795, 1944.
69. Li, M. H. and Gardner, W. U., Sci., *105*, 13, 1947.
70. Brewer, J. I., Arch. Path., *41*, 580, 1946.
71. Gurchot, C., Krebs, E. T. Jr. and Krebs, E. T., Surg. Gyn. and Obst., *84*, 201, 1947.
72. Boyd, W., Textbook of Pathology, 4th ed., 673, 1943.
73. Hitschmann, F., Z. Geburtsh. Gyn., *53*, 14, 1904.
74. Schmori, G., Munch. med. Wchnschn., *59*, 2111, 1912.
75. Veit, J., Zol. Gyn., *44*, 1044, 1900.
76. Fidler, H. K., Am. J., Cancer, *25*, 772, 1935.
77. Greenstein, J. P. The Biochemistry of Cancer, Academic Press, 1947, New York.

CRITIQUE ON MEDICAL DESCRIPTION

SHERWIN ISAACSON

AFTER four years of being engrossed in the apparently insurmountable tomes of medical textbooks, trying desperately to commit their contents to active memory, I have been struck by several salient characteristics distinctive to medical writing. None of these has been as unavoidably ubiquitous as the great variation in the description of the relative frequencies of conditions as they appear in different diseases. This is, of course, particularly distressing to the medical student who seeks eagerly for the definite distinguishing characteristics of each disease.

Since all clinicians will agree that the frequency of a condition is always an important—and often the most important—factor in primary consideration for diagnosis of a given case, as accurate as possible a method of describing such frequency is greatly to be desired. The importance, for example, of knowing whether in a given condition a positive blood culture is present "commonly," as it is so often expressed, or in 85% of the cases, is self-evident. The discrepancy between this desire for accuracy and the present actual state, has led me to attempt some sort of investigation for clarification and possible suggestions arising therefrom.

Table 1 gives an indication of the differential use of terms derived from selection, entirely at random, of characteristic passages taken from five textbooks of medicine and two medical journals. For determining the absolute prevalence of the use of these words, I refer the reader to the most direct and striking source possible—the literature itself. A glance alone is convincing. All of the reference material used was from descriptions of the clinical pictures of disease entities. It is noteworthy that descriptions of etiology and pathology were far more exacting and statistics were cited wherever feasible, and as much as possible. The reasons for this are important and must be considered for a proper perspective in this discussion. In etiologic and pathologic studies, statistics and recorded facts have found their greatest field of application in medical science. This is easily explained since facts for such studies are more readily obtainable and recordable than are those of clinical findings, which are experienced under such constantly varying conditions; but this greater difficulty in recording and analyzing clinical pictures statistically must not let us shy away from the task. To disregard statistics in symptoms and signs might be condoned if, in view of the formidable appearance of the job, such description were unimportant. But they are important, and their great importance is constantly stressed in practically every statement found in written clinical description, almost all of which refer in some way to the relative frequency of the discussed phenomenon. Because of this fact, the unscientific and indeterminate groping after truth by the indiscriminate use of such terms as shown in Table 1, is not only inadequate but actually distorting.

That some improvement is possible with proper care, is shown by the fact that the journals were found in this study to be far more exacting than the textbooks. Since authors of papers in journals open themselves to the criticism of the entire profession in their articles and are thus more careful in their statements, such a situation is to be expected. The textbooks' showing of even more accuracy than the journals is as desirable, however, since students tend to look at their textbooks as the last word, indisputable and totally reliable.

When no mention of frequency is made, and this happens all too often throughout the literature, one assumes that the described phenomenon is present at all times in the condition considered. Since no statement contrary to this assumption is ever stated, it must be accepted as such.

It would be quite unfair not to recognize that there are situations in which it is quite impossible to give accurate figures due to widespread variation. In such states, the use of the "wastebasket of frequency avoidance," the word "may" is resorted to. What medical student has not smiled at descriptions such as: "There may be **rales,** which may be moist or dry; breath sounds may be diminished or at times increased." In perusing ten pages of textbooks picked entirely at random, an average of 6.4 uses of this word

per page were found. While this must be condoned in many instances, there are likewise many instances in which more accurate statements as to frequency could be made with a little extra thought and investigation. The necessity for such a word is, of course, directly proportional to the variability of the disease considered;

TABLE I

Terms Used	Frequency of Use
usual (ly)	150
often	46
common (ly)	36
occasional (ly)	34
frequent (ly)	33
sometimes (some)	27
rare (ly)	24
not uncommon (ly)	12
not infrequent (ly)	10
unusual (ly)	6
ordinarily	5
seldom	5
generally	4
uncommon	2
infrequent	2
very rare	2
not unusual	2
Total	400

decreasing in use with a symptom as exophthalmos in thyrotoxicosis, increasing in symptoms such as those of toxemia in pulmonary tuberculosis.

It is particularly important to note that different terms are used by different authors in attempting to describe the same apparent frequency in reference to the same topic. This adds still more to the vagueness in expression of the intended meaning. The confusion is brought out most strikingly when one compares the descriptions of the same subject found from different sources, when one of them gives figures and the other uses words. As an example, one author tells us that "probably 95%" of peptic ulcers are roentgenologically demonstrable under optimal conditions; another uses the terms "usually" and "frequently"; still another uses the even more indefinite "may" to describe the possibility of x-ray findings here. Such lack of uniformity certainly does not appear desirable.

One must also realize that in discussing the frequency of occurrence of a condition, an author is prone to refer to his own experience, which must vary from that of others whose attention may be more directed to certain features not considered by the author. For example, the experience of an oto-laryngologist will cause his attention to be directed to paranasal sinus conditions as the commonest cause of headache; the ophthalmologist's experience, on the other hand, will stress eye-strain. Similarly, hypertension or migraine will be more firmly impressed in the mind and experience of the internist. Each of these will differ from the others in describing the relative frequency in etiology of cephalalgia, even should they use statistical methods of description. In the latter type of description, however, one can at least tract back to the series of cases described to find the modifying factors. When indefinite adverbs are employed to characterize frequency, however, only unfathomable bewilderment remains.

Let us now see what, if anything, can be done about this situation. As has already been suggested, the adoption of more care in writing and the substitution of statistics whenever available for general terms, would be a step in the right direction, even though we cannot entirely eliminate the use of adverbs and adjectives such as found in Table I from our vocabularies. As is to be expected, the medical lexicographers, probably hastily considering such word usage as self-evident and "non-medical," and thus conforming to the status quo, make no attempt at defining these terms for our use.

Thus in order to establish some simple order out of this seemingly chaotic state, let us first turn to Webster and Funk and Wagnalls to find out which of the above terms they consider synonymous. From them we find the following quite disturbing facts:

Usual = common = ordinary = frequent = general = often
occasional = sometimes
rare = infrequent = uncommon = unusual = seldom

Attempting the use of these terms with some degree of accuracy and still trying to retain their synonymous content as much as possible, I have defined in Table II gradations in percentages

among them. This has been done as merely arbitrary suggestion which I humbly submit, and any other simpler or more adequate designation could readily be substituted for it. Once the best system is agreed upon, however, uniformity in following that system must be strictly maintained. Standardization is an absolute necessity for universal clarity.

TABLE II

Expression	% Range	Expression	% Range
almost always	96-99	not common not infrequent not unusual	26-50
very common very frequent very often	91.95	uncommon infrequent unusual	11-25
common usual ordinary (ily)	76-90	seldom	6-10
frequent	51-75	rare	1-5
		very rare .. less than 1	

In the above attempted analysis and suggestions, I realize fully the very profound implications that would arise from the adoption of such a system universally. While only through universal use could its full value be achieved, individual publications could still use such a system on their own once they have openly stated such a policy and system, so that it would be understood by the readers.

But the difficulties in application of such a plan do not dissuade the presentation of it, because I feel that its value is definite and hope that that impression is conveyed in these few words.

Biology, and medical science as a branch, are often considered not to be an exact science due to the well understood presence of biological variation, which causes laws relating to vital processes to be considerably less than absolute and subject to many exceptions. There is a great deal of order in life processes, however, and biostatistics show extremely valuable trends to be considered and relied upon. The fact that data is somewhat more difficult to accumulate in this variable field of study must not deter us from our search after more exact truth for the benefit of mankind. The application of mathematics to interpretation of observed phenomena is the basis of modern exact science. We in medicine can do much to further our aims and thus those of humanity in general, by more effort toward such application in clinical studies.

BIBLIOGRAPHY

Archives of Internal Medicine: 1945-46, Vols.

Cecil: Textbood of Medicine—6th Edition—1943.

Christian: Osler's Principles and Practice of Medicine—13th edition—1938.

J.A.M.A.: 1945-46 Vols.

Meakins: Practice of Medicine—3rd Edition—1940.

Yater: Fundamentals of Internal Medicine—2nd edition—1944.

Examination of semen specimens in 1,500 cases of sterile marriage showed that about 50% had deficiencies either in spermatozoa count, motility, or morphology. As the spermatozoa count falls below 60 million per c.c., other defects, such as motility and abnormal morphology, become more apparent until, in the very low count range, all three deficiencies together are likely to be found.

Where successful pregnancies eventually occurred in this large group, the greatest number were found where no obvious fault was apparent in either partner and where the spermatozoa count was consistently in the higher brackets. It is suggested that the 60 million per c.c. spermatozoa count level is a reasonable dividing line between good and impaired fertility.

—Amer. J. of Obs. & Gyn.

There is a distinct relationship between basal body temperature and ovarian function.

When ovulation occurs in the pre-menstrual phase (about 14 days prior to menstruation) the basal temperature rises 0.4-0.8 degrees F. and this remains elevated until the flow starts.

During the menses and up to the next ovulation the temperature remains lower. This is the post menstrual phase.

When the patient becomes pregnant the temperature will remain elevated instead of dropping. It remains elevated for several months.

The temperature is taken rectally every morning on awakening (before arising) for a period of from 2-3 months and a graph is plotted.

—The Doctor

Alumni News

CHANGE IN THE CONSTITUTION OF THE CHICAGO MEDICAL SCHOOL

During the past sixteen years, or so, the corporate set-up of The Chicago Medical School was such that the members of the corporation consisted of (1) alumni of The Chicago Medical School who are members of the medical society; (2) graduates of schools which were absorbed by The Chicago Medical School who are members of the medical society, and (3) members of the Board of Directors, during the tenure of their office.

The change in the Constitution which took place on May 9, 1947, put the corporate structure of the school in line with that of other schools. In this manner, the complete control of the School was transferred to the Board of Trustees, who are the sole corporate members of The Chicago Medical School.

Since this corporation meeting was held immediately after the survey of The Chicago Medical School by the accrediting bodies, a special communication was addressed to each of the representatives, informing them officially of the action of the corporation and the transfer of corporate control to the Board of Trustees, effective May 9, 1947.

It is to be noted that the main amphitheater of the School, in which the meeting was held, was filled beyond capacity and that the proposed revised constitution was adopted unanimously and with great enthusiasm.

We were honored to have at this meeting Mr. Mark Sugarman, who made a special trip from New York. He addressed the members of the corporation, advising them that it was not only a pleasure to be of service to our institution, but a privilege of great magnitude.

OUR ANGEL SPREADS HIS WINGS

It is no chore to report on our trustee, Mr. Mark Sugarman; but rather it is a privilege. The last time we had occasion to write about Mr. Sugarman, it was to relate that he had personally presented $50,000 to the Guarantee Fund of the Chicago Medical School. This established a record for the largest individual contribution. We are happy to report that that record has been broken by Mr. Sugarman himself—who raised his contribution to $100,000. Our angel is spreading his wings.

Mr. Mark Sugarman

1930

We are very sorry to hear that **Dr. Tom Moran,** who had his practice in Alton, Illinois, passed away in December 1946. He will be greatly missed by all who knew him.

1933

Dr. Benjamin Sonenschein is now associated with V. A. in Des Moines, Iowa, where he is treating outpatients and performing pension exams. Dr. Sonenschein intends to return to private practice in Illinois one of these days—Don't forget to let us know when, Doctor!

From the west coast comes the good word that **Dr. Joseph A. Marlo** is associated with the El Monte Hospital in El Monte, California.

THE SURVEY OF THE CHICAGO MEDICAL SCHOOL

During the period of May 5-8, inclusive, The Chicago Medical School and its facilities were surveyed by representatives of the Council of Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges. The inspectors, Drs. Herman G.. Weiskotten, Fred C. Zapffe and Victor Johnson, were greatly impressed with the progress of our Medical School in its promising efforts to establish an acceptable program of medical education. They found that there has been such decided improvement in the financial support, administrative organization, and the quality of instruction offered, that they wished to give the institution every encouragement to proceed along this desirable path. The inspectors felt that the quality of education offered during the first two years of our medical course is of approved caliber, and that if similar progress is to be made in the second two years, the School would merit approved classification.

1934

Dr. Louis Goldman is in the practice of general medicine at 700 W. 47th Street in Chicago.

Dr. Joseph L. Bezdek is at present engaged in general practice at 1148 So. Michigan Ave. in Chicago.

Dr. Salvatore has just resumed his practice in Wood River, Illinois.

We are pleased with these reports from members of this class, and we hope that in the future they will find a spare moment to let us know how they are getting along.

1935

Dr. John LeBlanc of Cottage Hills, Illinois, has sent us information on a number of alumni, and has been of great assistance to us in our efforts to keep track of our ever growing list of alumni. Thank you very much Dr. LeBlanc, and may we wish you continuing success in your endeavors in the field of Proctology.

Dr. Alfred J. Tanny has informed us that he is practicing General Medicine and Surgery in the far-off Southwest . . . Albuquerque, New Mexico.

1936

In the last minutes before we went to press, we received a very welcome communication from **Dr. Nathan Mann,** who, after being retired from the Medical Corps as a Captain, is now living at 587 Valle Vista Ave., Oakland, California. He has a residency there and is taking Post-graduate refresher training at the same time.

Since his completion of interneship, Dr. Mann has spent two years with the U. S. Public Health Service, and three and one-half years with the Civil Service. Although he has already received his license in Arizona, Illinois, Massachusetts and Texas, Dr. Mann is attempting to receive one in California, and is now awaiting the decision of the Supreme Court of California to that effect. You have all our best wishes and good luck behind you.

1937

Dr. Norman Angel, of 622 Diversey Parkway, is our sole correspondent from this class. . . . How about the rest of you writing to us and to Dr. Angel?

1938

It's good to hear from **Drs. Curoso, Dominski,** and **Paine.** Dr. Curoso writes us that he is in general practice at 3100 Fulton Blvd. in Chicago. Dr. Dominski is in Brookfield, Illinois, and Dr. Paine is in Austin, Texas, and both are engaged in general practice.

1939

We received a letter from New Mexico . . . **Dr. Albert M. Rosen** tells us that he has limited his practice to general surgery as associate of the Pond Clinic. Dr. Rosen was a delegate to the New Mexico State Medical Society Convention in May of 1947. He is also the Surgeon for the Taos County Health Co-op — a medical prepayment group in its fourth year. We wish you the the best of luck Dr. Rosen.

(Continued on page 22)

CLASS OF 1947

The Thirty-third Commencement

On Friday, June 20, 1947, the commencement exercises of the Class of 1947 of The Chicago Medical School were held at the First Congregational Church. Following the invocation by the Rev. Dudley Scott Stark, the commencement address was delivered by Dr. Bernard Iddings Bell, consultant in education to the Bishop of Chicago.

In this modern world, the physician is a teacher as well as a leader, stated Dr. Bell. He must take upon his shoulders the duties of the church and the educator; he must teach people to live simply, bravely, and in the philosophical spirit in the midst of world problems. The physician himself must have understanding and sympathy, for it is only with those attributes that he can hope to "treat" people who cannot reconcile their way of life with their aspirations

The CHICAGO MEDICAL SCHOOL

and ambitions. The poet Browning, put it so succinctly: "What I aspired to be, and was not, comforts me." The physician, said Dr. Bell, must understand these human motivations as well as their diseases. Dr. Bell's address was worthy of being heard by every student of medicine.

The graduates presented by Dean Sheinin, then received their degrees from the chairman of the Board of Trustees, Mr. Lester N. Selig. Following this, Mr. Selig delivered a statement from the Board of Trustees and a resume' of the monies received in the last year.

The entire student body and staff of The Chicago Medical School wish to extend their congratulations and good wishes to the sixty-five members of the thirty-third graduating class.

Drs. McKerr and **Hart** dropped us a line as to their whereabouts. Dr. McKerr is in general practice in Pittsfield, Mass. and Dr. Hart is practicing here in the city, at 1362 W. Belmont Ave.

Dr. Irving H. Blumenfeld, now practicing in Brooklyn, New York, has sent us another of his papers for publication . . . entitled, "The Complications of Spinal Anesthesia." Part of this paper was read by Dr. Blumenfeld at an Anesthesiology Conference held at the headquarters of the Second Service Command at Governor's Island, New York. The leading Anesthesiologists of the United States, both military and civilian, were present at this discussion of post-spinal headaches, which is now included in an Army publication, entitled, "Anesthesia Conference", June 17, 1945.

The article was written when Dr. Blumenfeld was on the surgical service and Chief of the operating and anesthesiology sections, Station Hospital, Camp Shanks, New York, and during the time the Doctor was at the School of Anesthesiology, Tilton General Hospital, Fort Dix, New Jersey.

Thank you Dr. Blumenfeld . . . we will be looking forward to more of your papers.

1940

A lonely note from an alumnus of 1940—**Dr. Anthony Scimnis** writes that he has resumed his practice in Baltallo, Illinois.

Where is the rest of the class of 1940 hiding?

1941

Dr. Paul Garrison writes us that he is practicing in Winchester, Illinois, and invites us out for the good hunting.

Dr. Arnold S. Black can be reached at the Winter V. A. Hospital in Topeka, Kansas, where he is doing psychiatric work. Dr. Black is a Fellow of the Menninger Foundation School of Psychiatry.

Dr. John M. Staren was recently elected to membership in the Chicago Society of Industrial Medicine and Surgery. Congrats also to you and your wife on the birth of your baby girl Jean Ellen.

Drs. Doelker, Taylor, and **Sanderson** dropped us notes a few weeks ag to tell us that they are back at the ole grind. Dr. Doelker is in Freeport, Dr. Taylor is in Cowden, and Dr. Sanderson is in Edwardville—all in the state of Illinois.

1942

We have just found out that **Harry Michael Siegel** was married to Miss Nita Alice Eisenberg of Winnetka on Dec. 22, 1946. We are not sure, but we think they live in Chicago. Please accept our belated congratulations, Dr. and Mrs. Siegel.

1945

Dr. Milton Silberman, discharged from the Army, has opened his office at 4006 Milwaukee Ave. He was married in July of 1946 to a girl from his home town—Atlantic City, New Jersey.

School Notes

The Yorburgs, Lee and Betty, are celebrating their first anniversary this month, June 23. Lee is a member of the junior class.

Mr. and Mrs. Marvin Wertheim celebrated their first wedding anniversary on May 30.

Fraternity News . . .

The Formal Senior Prom of Phi Lambda Kappa Fraternity was held in the Red Lacquer Room of the Palmer House Hotel on May 17, 1947. Dr. Max Kaplan, National President of Phi Lambda Kappa and Professor of Roentgenology at The Chicago Medical School, was among the many well known alumni to attend the affair, which was held in conjunction with the University of Illinois School of Medicine's Alpha Alpha Chapter.

Fraternity keys were given to all the graduating seniors, and Jerome Ehrlich, past-president of the Alpha Rho Chapter, received a special award from Dr. Kaplan for outstanding leadership during the past year.

Faculty Notes

DONALD S. MILLER, Ph.D., M.D.

We take this occasion to welcome Dr. Donald S. Miller to the staff of the Orthopedics Department of the Chicago Medical School, and to offer him our best wishes for the future.

Dr. Miller

Dr. Miller is a graduate of the University of Illinois Medical School and was elected to Alpha Omega Alpha Honorary Society of that college. He served his interneship at Cook County Hospital where he also took his residency in Orthopedics. His studies include training in Italy and various other parts of Europe and have aided Dr. Miller in fulfilling requirements for both Master's and Ph.D. degrees as well as his medical degree. His varied interests are indicated by Dr. Miller's membership in the following organizations:

Sigma Psi
American Academy
American Boards in Orthopedics
Fellow of the American College in Orthopedics

More than a dozen of Dr. Miller's papers have been published; most of them dealt with his special interest, Vascular Orthopedics.

A veteran of World War II, Dr. Miller served three years, from 1943-1946, with the 108th General Hospital Unit where he reached the rank of Lt. Colonel. The doctor is at present affiliated with Cook County Hospital, Mt. Sinai Hospital as well as The Chicago Medical School.

DR. ALLAN B. HIRSCHTICK

We should like to extend a hearty welcome to Dr. Allan B. Hirschtick who has joined our Orthopedics Department.

Dr. Hirschtick attended the University of Illinois, both as an undergraduate working for his Bachelor of Science degree and as a student at that university's medical school. He was elected to the Alpha Omega Alpha Honorary Society while there. The doctor interned at Cook County Hospital for one and one-half years and then continued at that hospital for three years as a resident in Orthopedics. After his residency, Dr. Hirschtick became an associate in Orthopedics at the same institution and served in that capacity during 1941 and 1942.

In February 1942, Dr. Hirschtick entered the Army in which he attained the rank of Captain. He saw service in the North African and Italian

Dr. Hirschtick

campaigns with the 7th Station Hospital, and was overseas thirty-three months. During this time the Presidential Unit Citation was conferred on his unit, and before his discharge in February of 1946, he wore three battle stars on his campaign ribbons.

The doctor is now affiliated with Michael Reese and University Hospitals. He is a member of the American Boards in Orthopedics and also a Fellow of the American College of Surgeons. Among the fraternal organizations with which he is associated are:

Alpha Epsilon Pi Fraternity
Phi Eta Sigma Honorary
Alpha Omega Alpha Honorary
Phi Delta Epsilon Medical

Dr. Hirschtick is married and has two sons. He is a native of Chicago and was born here June 12, 1913. All of his primary schooling was received in Chicago.

* * *

A versatile fellow is our Dr. Jay Smith—he of the Physiology Department. Not content with teaching, doing research, puttering around and designing new gadgets, Dr. Smith utilizes his hobby, photography, to a useful scientific purpose. Under the auspices of the National Society for Medical Research, he has been recording pictorially animal experiments and new techniques and apparati used in research involving surgical procedures on animals. This work has accomplished the purpose of promoting animal investigation. . . .

* * *

In May, 1947, the Federation of American Societies for Experimental Biology held its annual convention in Chicago. The Chicago Medical School's Department of Physiology presented two original papers. . . . Drs. Piero P. Foa and Jay A. Smith, and Miss Harriet Weinstein, research assistant, presented a paper on the toxic effects of thiamine. Dr. Smith also gave an interesting account of the lack of effects of digitalis on decreased blood pressure when amino-phylline is used. This research is summarized elsewhere in this issue.

* * *

We hope our Assistant Professor of Library Sciences, Miss Campbell, had a pleasant trip when she attended the meeting of the Association of Librarians in Cincinnati, Ohio. Her paper was very well received by her colleagues.

MEDICAL TID - BITS

Rheumatoid arthritis may be a disease whose underlying cause may be found in upset emotions such as worry, grief, loneliness, anxiety, and emotional shock, says Dr. Herman N. Bundesen. The explanation is that emotional upsets bring about changes in the sympathetic nervous system, circulation is disturbed, the digestive system is upset and every nutritive process suffers. The joint is deprived of food and oxygen, the cartilage loses its smooth, satiny appearance and the atrophic process sets in.

—American Weekly

* * * *

Experience shows that electroshock is particularly indicated in depressive states, including manic-depressive psychosis and involutional melancholia. It has limited application in dementia praecox, particularly in catatonic stupor. These cases represent about one-quarter of the admissions to state mental hospitals. The results in the other psychoses are not very encouraging, although improvement is sometimes observed in individual cases. It is applicable, therefore, in a fairly large percentage of hospital admissions. Reversal of the psychotic pattern, in appropriate cases, is usually effected in days or weeks where formerly months and years were required. Electroshock is not specific. It has no particular curative properties. It simply aborts and terminates self-limiting psychoses while still reversible. It is an empirical procedure, pure and simple, awaiting scientific understanding.

—Penna. J. Med.

* * * *

Mr. Milquetoast had summoned the family doctor who, after carefully examining him, said:

"Yes, it is some chronic evil which has deprived you of health and happiness."

"Shh!" cautioned his patient, "For heaven's sake, speak softly—she's sitting in the next room."

—The Doctor

COMPLICATIONS OF SPINAL ANESTHESIA

IRVING H. BLUMENFELD, B.S., M.D.

(First of Two Parts)

INTRODUCTION AND DISCUSSION

AS EARLY as 1909[1], spinal anesthesia was recommended to surgeons and anesthesiologists as a routine procedure preferable to inhalation anesthesia in military surgery. Its popularity increased markedly in the first Great War[2], during the Spanish Civil War[3], and today subarachnoid block is recognized as a standard method in both army and civilian hospitals. It is used with greater frequency than any other single form of general anesthesia for major surgery, especially in fixed army installations where the major portion of surgery performed is orthopedic, abdominal, or rectal. Until the present decade spinal anesthesia has had to contend with many limitations to its clinical application. We can preceive the reasons for this conservative, but nevertheless logical, attitude.

For a long time, surgeons had attempted to adopt that method whose advantages they were quick to recognize. It was not in their province to make a thorough study of the agents used, technicalities of the procedure and its physiopharmacodynamics. So with a method that had much of its basis in empiricism, difficulties and incomprehensible phenomena were inevitably encountered. Because they were incapable of differentiating the physiological from the actual pathological, clinically alarming signs and symptoms were inadvertently classified as complications.

True, spinal anesthesia is attended by complications as are all other known forms of anesthesia. This is unfortunate as we are adding an extra hazard to an already pathologically involved organism. The surgeon is ever on the alert to recognize factors which may be deleterious to the recovery of the patient and significantly increase his morbidity and mortality rtes. All of his efforts will be exerted in attempting to eliminate as many of these adverse factors as possible. If complications prove to be excessive or if there are many phenomena noticed which are dynamically dramatic and alarming to him, he will dispense with the method, especially if new, and readopt an older standby which has proven its efficacy and safety, with time and experience. This has been deplorably true of the spinal form of anesthesia.

Concomitant with the utilization of any anesthetic agent there follow a train of events in the body which are the physiological response of the organism to the stimulus of this pharmacological agent. This is true no matter how our means of introducing the drug — spinal, inhalation, intravenous, rectal and so on. We consider it physiological because we can predict with a reasonable degree of certainty what the response of the organism will be. Furthermore, the manifestations will not usually prove to be deleterious to the organism and disappear rapidly when the compensatory mechanisms come into play. It is, therefore, an essential prerequisite that the anesthesiologist be thoroughly acquainted with the pharmacology and physiology of all the agents in his armamentarium. Otherwise he will most certainly classify normal signs and symptoms encountered, in the category of complications. This has, unfortunately, been a common factor in the past for placing the spinal method in disrepute.

It is quite true that if the normal immediate responses are not properly interpreted, observed and then controlled, when indicated, they may become aggravated, persist, and then can be properly labeled as complications. An example of this is the prompt fall in blood pressure commonly noted with spinal puncture. It is essentially a peripheral vascular depression, which if permitted to progress over an extended period, will, in rare instances, go on to complete collapse. Prompt counter measures with some vaso-pressor agent is indicated. The anesthesiologist should be ever vigilant and cognizant of the fact that simple prophylaxis promptly instituted, when his specialized judgment deems it necessary, will do much to relieve post-operative morbidity and most certainly lower the mortality rate. The old maxim, "An ounce of prevention is worth a pound of cure" can find no better instance for application.

Within the past decade, and coincident with the ever increasing complexity of surgical procedures, the need for well trained physician anesthesiologists has become apparent. The technician anesthesiologist of the past is gradually proving to be inadequate and his limitations progressively evident. In our streamlined and revolutionary age empiricism is ever a danger. We like to be thoroughly acquainted with the premise before we state the conclusion. Therefore there has been born to our profession the new specialty of anesthesiology, capable of explaining scientifically and soundly, the phenomena we observe while employing the anesthetic agent. The medical anesthesiologist has lifted the cloud of alarm formerly enveloping clinically manifested, unrecognized physiological phenomena. In no other place has this been more evident than in spinal anesthesia. Many of the signs and symptoms which had necessitated prompt emergency treatment and even temporary stoppage of the operative procedure — are today regarded with due respect but not excessive apprehension.

It is our purpose in this paper to evaluate the complications noted with spinal anesthesia. We like to label as complications only that morbid symptomatology which manifests itself clinically after the dura has been punctured. It would even be preferable to make the criteria finer. For, doesn't headache follow diagnostic lumbar puncture as commonly as spinal anesthesia?[4] But we realize that this is a theoretical nicety of reasoning and that practically it is not logical to delegate into a sphere of isolation any mechanical aspects of the procedure. So we shall aim at completeness and include all abnormalties observed after the spinal needle has punctured the skin.

COMPLICATIONS OF SPINAL PUNCTURE

Miscellaneous

Nervousness, apprehension, syncope, hysteria, nausea, vomiting, sweating and the like which are obviously of a psychogenic nature, were formerly quite common during the course of the lumbar puncture — but are rarely seen today. Likewise, procaine toxicity and idiosyncrasy can be included here. Adequate premedication and psychotherapy have markedly diminished their prevalence. The above mentioned symptoms may occur likewise before or during any surgical procedure, no matter the type of anesthesia employed, if the patient is not properly prepared. The preoperative necessity of adequate doses of opiates and barbiturates can not be too strongly stresed. It will make the difference between a smoothly run anesthetic procedure and unnecessary difficulty; perhaps even failure. Considering psychological trauma alone, there are so many factors involved preliminary to a surgical procedure that even the well balanced individual may be readily disturbed. Adequate premedication is a necessary preliminary to the institution of a satisfactory anesthetic procedure.

Even the most proficient anesthesiologist will occasionally meet with some of the following during the introduction of the spinal needle: tap failure, broken needle, paresthesias, bloody withdrawal and the like — but they are more common in the hands of the inexperienced. A thorough knowledge of the anatomy and the mechanics of the procedure make these a rarity for the well trained anesthesiologist. They need no further discussion. The same is true of the very rare "lumbar puncture death," due to rapid withdrawal of spinal fluid followed by herniation of the brain stem through the foramen magnum. Sudden death will then follow, eventuated by undue pressure on the vital centers in the medulla. In the cases reported in literature the patients had intracranial tumors—more frequently cerebellar, or a cerebral hemorrhage—; the spinal procedure being done in a sitting position. Fortunately this is of rare occurrence.

Sudden Fall of Blood Pressure

As mentioned before, I consider this within certain limits to be physiological — part and parcel of the method — due to the pharmacodynamic action of the drug. There is usually no permanent damage to the involved neurovascular mechanism which very readily recovers.

The theories[5] for pathogenesis of fall in blood pressure are:

1. Hematogenous intoxication.
2. Direct action on the medulla.
3. Paralysis of the adrenal nerves with reduced secretion of epinephrine.
4. The anoxia theory.
5. Paralysis of the vasoconstrictor fibers in

the anterior spinal roots.

6. The theory of stagnation in the post-arteriolar bed.

Koster[6] kept records of blood pressure variations in 4,500 cases and arrived at the conclusion that it is impossible to predict, in any case, with any degree of accuracy, what will happen to the pressure after the injection of the anesthetic agent. In some instances there is no appreciable change. Other patients show a maximum fall of about 10 millimeters of mercury. A fairly large number have a drop in pressure of between 20 and 30 millimeters within 10 minutes after the time of injection; this fall being sustained for approximately three-quarters of an hour — the return to normal immediately preceding the return of sensation. In some instances the drop is from 50 to 75 millimeters within 10 minutes, and within another 10 minutes there is a return to about 20 millimeters below the normal. In at least five per cent of all cases the pressure drops within 10 minutes to such a level that no radial pulse can be felt nor can the pressure be registered by the manometer.

These figures are of practical significance. Koster, in these, and in the approximately 9,000 cases that followed before his death, rarely if ever utilized any vasopressor or stimulating drugs. They indicate the wide margin of safety; that is, how well the compensatory mechanism can usually readjust even when the drop in blood pressure passes from the confines of the stages of normal reactivity to that which can actually be considered as abnormal. But we do not believe in taxing the safety mechanism of the body and utilize a vasopressor (usually ephedrine) whenever indicated.

Rovenstine, et al[7], are also of the conservative school and use orthodox procedures, ephedrine, fluids intravenously, etc., in combating undue fall of blood pressure. It is of interest to note some of their findings.

The criteria as to severity of blood pressure fall were arbitrarily selected. A fall in mean pressure of 40 per cent or more was considered severe; a reduction of 20 to 39 per cent moderately severe; and 1 to 19 per cent slight. In addition there were patients who had no reduction or had a definite rise in blood pressure.

Thirty per cent of the patients had a severe fall in blood pressure; 21 per cent a slight fall; and for nine per cent no fall was recorded. A total of 70 per cent of patients exhibited significant hypotension. These figures contrast strongly with the effects of spinal anesthesia on the blood pressure of normal man in the supine position, not given premedication or operated on. Smith and his associates, and Rovenstine and his group, have found no instances of severe fall in blood pressure, as defined here; and moderately severe fall in mean pressures in only 25 per cent of the cases studied as compared with 40 per cent in the operative series. In round figures, almost all of the clinical patients exhibit significant hypotension whereas less than one-quarter of the subjects not operated on show such changes. The fall in blood pressure, regardless of the type of surgery performed, occurred after the beginning of the surgical manipulations in practically all instances, is believed to be the result of decreased venous pressure (and hence decreased cardiac output). The manipulation may be rapid change of position, abdominal incision, leaning against the patient's thorax, handling of viscera, hemorrhage, or the use of abdominal packs. That surgery in its various aspects is an important factor in producing a fall in blood pressure by spinal anesthesia seems obvious. The patient whose sympathetic nervous system is extensively denervated (sixth thoracic vertebra or above) is competent, from the point of view of the circulation, to handle his needs in the resting state in the supine position. However, trauma of any sort, concomitant with operative manipulation in the face of vasomotor paralysis and the loss of vasomotor defense, may precipitate a significant reduction in blood pressure and, if severe enough, complete circulatory collapse.

The importance of "traction reflexes" (stimulated by tugging on viscera) in causing fall in systolic and pulse pressure is thoroughly discussed in three papers[8, 9, 10] along with other involved mechanisms — and is recommended for a detailed discussion on the subject.

We have noted, commonly, a drop of 10 to 30 points in systolic blood pressure due to premedication alone. Our usual doses are morphine sulphate, grains 1/4 1/6, scopolamine hydrobromide, grains 1/100 1/150, and nembutal, grains

3½. These doses have proven very satisfactory but indicate the importance of recording the blood pressure the night before surgery, before and after premedication is given, as well as after the anesthetic is administered and during surgery. All involved factors should be taken into account.

The subject of fall in blood pressure during spinal anesthesia could be further discussed but we have only attempted here to indicate how multitudinous are the factors, each of which can significantly contribute to the fall.

Nausea and Vomiting

The vomiting center in the medulla may be excited[11] (a) reflexly by impulses arising in the stomach, or some other part of the body, (b) by impulses arising from the cerebral centers, or (c) by chemical materials carried to it in the blood stream. The afferent fibres are contained chiefly in the phrenics, the vagi and sympathetics, but fibers are also conveyed by spinal nerves to the abdominal muscles, by cranial nerves to the pharynx, palate, etc. The afferent impulses reach the center along a multitude of routes, the chief being the vagal and sympathetic fibres of the stomach and abdominal viscera. From this we can estimate how variable are the reasons for vomiting during the course of a surgical procedure.

Maxson[5b] lists the essential causes for nausea and vomiting during spinal anesthesia:

1. A marked fall in blood pressure with a resultant cerebral anemia.

2. Traction on viscera and mesenteries, particularly the mesoappendix or compression of viscera, such as the ovaries or testicles which may or may not produce pain, frequently produces nausea via unblocked sympathetic afferent fibers.

3. The presence of bile in the stomach from relaxation of the sphincters of the pylorus and gall bladder, may be a source of vomiting.

4. Idiosyncracy to morphine, producing vomiting, of course, is manifested during this period as well as pre- and post-operatively—not being held in check as in deep general anesthesia.

5. It may be caused by administration of adrenalin. The nausea and vomiting of this generally comes in recurring waves, seldom lasting more than two minutes at a time. To this can be added:

6. Central action of the anesthetic drugs, and

7. The already mentioned psychic stimuli due to fear and anxiety. One or all of these factors can cause the nausea and vomiting seen during spinal anesthesia.

The retching and vomiting that occurs concomitantly with the greatest depression of the blood pressure can be attributed to the effects of the anesthetic agent. The anoxia resulting from the poor blood supply to the vital centers of the brain causes an increased excitability of the vomiting center and so vomiting of a central type.

We use ephedrine sulphate to control blood pressure levels and see a surprising small amount of retching and vomiting. When it does occur, the discomfort is for a very brief period and is usually controlled by use of oxygen to relieve the anoxia. The Trendelenburg position to improve the blood supply to the brain and also prevent aspiration, if it happens to be a productive type of vomiting, deep breathing or even a few whiffs of nitrous oxide and oxygen seem to help at times.

From the strict viewpoint we are not interested in the other causes of vomiting—only in the undue fall in blood pressure. For they can be eliminated or minimized in intensity and frequency as etiological factors by attempting to avoid them. The anesthesiologist should be as diplomatic as possible, reminding the surgeon that there are traction reflexes and that gentleness during surgical manipulation will decrease untoward phenomena seen during the operation. It has been shown that substitutions of pantopon[12] in individuals who are sensitive to morphine will also help to eliminate vomiting. Awareness and avoidance of the etiological factors are the watchwords for both surgeon and anesthesiologist. Moreover, with the decrease in frequency of nausea and vomiting the anesthetic agent will be less frequently blamed.

(To Be Continued)

PLASMA CELL MYELOMA OF A SINGLE THORACIC VERTEBRA AND METASTASIS TO THE TESTICLES AND PANCREAS

J. D. KIRSHBAUM, M.S., M.D., F.A.C.P.
Associate Professor of Pathology
The Chicago Medical School

EXTRA-SKELETAL LESIONS in cases of multiple myeloma are an infrequent occurrence. The literature mentions the involvement of such soft tissues as lymph nodes, liver, spleen, lung, heart, skin, and subcutaneous tissue, testes, tonsils, and thyroid. The testicle has been involved in only three cases. The first case was seen by Werzberg, in Russia, who referred the case to Porchownik (1). This case showed large round nodules in both testicles. The second case by Ghon and Roman (2) showed only scattered plasma cells in the right testicle, but since no gross tumor was described, this case cannot be classified as a true metastasis. The third case was reported by Ulrich (3). His case was a 55 year old, white male, who had had the left testicle removed because of a tumor. At autopsy the lower one-third of the right testicle contained a firm, greyish-yellow tumor, diagnosed as a plasma cell myeloma. The bones in this case showed no evidences of disease, but myeloma cells were seen in the peripheral blood smears. The surgical specimen contained several small tumors, which histologically, showed atypical plasma cells.

The case to be reported is most unusual in that the fifth thoracic vertebra was the only bone involved, and metastases were found in both testicles, and in the pancreas.

Case Report:

The patient was a 62 year old white male, who was admitted to the neurological service of the Cook County Hospital, on January 6, 1940. He was well until six weeks prior to admission, when he noticed a dryness of his mouth, and needle and knife-like pains along the back of the neck, and down the back. For the past week he was unable to work, or use his legs, because of paralysis, and dizziness, being able only to stagger about, as if drunk. During the past two weeks, the patient also noticed that he was unable to empty his bladder, passing only a teaspoonful of urine at a time. He was aware of coldness of his extremities, and perspired freely. During the past two and one-half years, he had been constipated, and experienced difficulty in breathing on exertion, requiring two pillows while sleeping. The patient consumed two glasses of whiskey, and several glasses of beer daily.

Examination disclosed a well-developed, well-nourished man, who appeared nervous, and restless. His legs were flaccid and he was unable to move them. The deep reflexes were absent. Pain to pin prick was impaired over the dorsum of both legs, more marked on the right side. Position sense was impaired in the toes and right ankle. Vibratory sensation was normal. The temperature was impaired over the right leg. The blood pressure was 118 systolic, and 76 diastolic. Rectal examination showed a firm, but not enlarged, prostate gland. The scrotum was not examined.

Laboratory:

The white blood count was 3.000, and the hemoglobin was 80%. The non-protein nitrogen was 42 mgs. per 100 cc of blood. A spinal puncture was done, and the fluid showed a two plus Pandy, the fifty cells (lymphocytes). The Quackenstedt test was negative.

An X-ray film of the chest suggested an enlarged heart and increased hilar markings. A film of the spine was interpreted as osteo-arthritic changes in the lumbo-sacral region. The clinical impression was progressive hemato-myelia, possible transverse myelitis, cord tumor, or adhesive arachnoiditis. While in the ward, the patient's condition remained unchanged. He developed a fever, and it was thought that he may be developing a coronary occlusion. He was too ill for neuro-surgery, and he expired, eight days after admission, approximately seven weeks after the onset of his illness.

Autopsy Findings: (performed by Dr. J. D. Kirshbaum.)

The body was that of a slenderly built white male. The right testicle felt firm and was moderately enlarged. The heart was moderately enlarged, and weighed 400 gms. There was a slight sclerosis of the coronary arteries, and marked

atherosclerosis of the aorta. The lungs revealed hemorrhagic bronchopneumonia in both lower lobes, and a suppurative bronchitis. The liver weighed 1910 gms and appeared hyperemic. The gall bladder showed a chronic inflammatory process with suppuration, and evidences of an ancient perforation, with formation of an abscess in the wall of the first portion of the duodenum. The spleen weighed 160 gms. It was soft due to an infectious hyperplasia. The pancreas weighed 113 gms. In the tail there was a soft, light grey-tan

Figure 1.

Photograph of the left testicle shows the large metastatic tumor node (plasma-cell myeloma) near the lower pole and a smaller tumor nodule in the upper pole.

nodule, that measured 20 mm. in diameter. The kidneys weighed 480 gms. together. They were soft and the capsule stripped with ease, leaving a purple-tan, smooth surface. The cortex measured 3 mm. and the markings were distinct. The mucosa of the left renal pelvis and calyces was a discolored, dirty greenish-brown, and there were several abscesses that measured up to 2 mm. near the lower pole of the left kidney. The urinary bladder was enormously dilated, the wall was thickened, and the mucosa was a discolored, dirty greenish-brown and covered by a purulent material. The prostate gland was markedly enlarged and on sectionizing, both lateral lobes contained numerous cavities that measured up to 6½ cm. in diameter, and were filled with a thick, green pus. Bacteriological smears revealed pus cells, gram-negative rods, and gram-positive rods and cocci. Smears for tubercle bacilli were negative. The seminal vesicles appeared normal. Both testicles were slightly larger than normal. The left contained a large node near the lower pole, measuring 30 mm. in diameter. (see figure one). On sectioning it was gray tan and homogeneous. Near the upper pole, there was a similar nodule that measured 6 mm. in diameter. The testicular tissue was soft, and light tan. The right testicle felt firm, and on sectioning was reddish brown, and near the lower pole, there were several grey tan nodules that measured up to 10

Figure 2.

Photograph of the 4th, 5th and 6th thoracic vertebra. Note the primary tumor in the body of the 5th and extension of the process along both sides of the vertebra.

mm. The skull revealed no changes. The brain weighed 1420 gms., and appeared swollen. On the anterior surface of the fourth, fifth, and sixth thoracic vertebra there was a nodular, firm, tumor mass, measuring 9 cm. in longitudinal diameter, 7 cm. in transverse diameter, and 7½ cm. in depth. On sectioning, the mass was light gray tan, and trabeculated. On sectioning the vertebral column, the body of the fifth thoracic vertebra was partially replaced by a light grey tan tissue (see figure two). The tumor tissue extended into the vertebral canal, and partially compressed the spinal cord for an area of 15 mm. in length.

Microscopic Examination:

The large tumor mass along the spine and the vertebral body showed a similar picture. The tumor consisted of masses of cells resembling

plasma cells. The nuclei were often eccentrically located, and fairly uniform. In places some of the cells were large, and contained a deep staining, hyperchromatic nuclei. Multinucleated giant cells were numerous. Narrow septa of fibrous tissue, in places, coursed through the tumor. Section from the tumor in the testicles (Fig. 3) varied in appearance. For the most part, the tumor cells formed solid nests. In places the cells were fairly uniform in size, and resembled the plasma cell. In other places the cells were

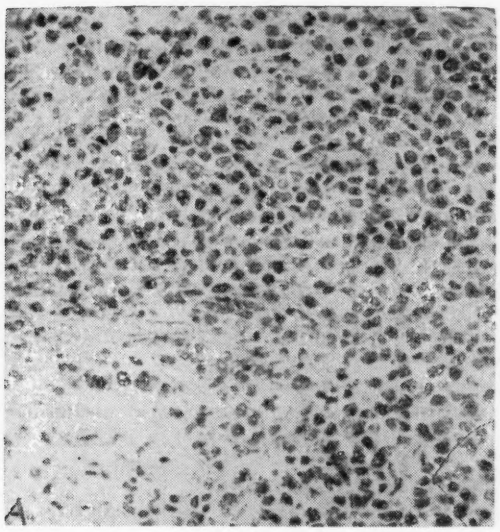


Figure 3.

(a) Low-power photomicrograph of the tumor in the testicle. The cells form dense masses without any intercellular substance. (Above).

(b) High power magnification taken from (a) shows the typical plasma cells with their eccentric nuclei. (Right).

larger, oval or round, and the nucleus occupied most of the cell. The nuclei varied in their shape, were hyperchromatic, and in places suggested a pleomorphic sarcoma. Mitotic figures were inconspicuous. The tumor in the pancreas gave the most benign looking appearance. Here the cells were of uniform size. They were oval, or round, and the nucleus often was eccentric. The cytoplasm was eosinophilic.

The kidney showed an interstitial inflammatory process.

Section of the urinary bladder, revealed an edematous mucosa, heavily infiltrated with polymorphs, and covered with fibrin.

The anatomical diagnosis of this case was:

Plasma cell myeloma of the 5th thoracic vertebrae, with metastasis to both testicles, and the tail of the pancreas.

Extension of the plasmacytoma to the soft tissues on the anterior surface of the thoracic vertebrae (5-6-7), and into the vertebral canal.

Slight compression of the spinal cord (level of 5th T.), and myelomalacia.

Suppurative prostatis.

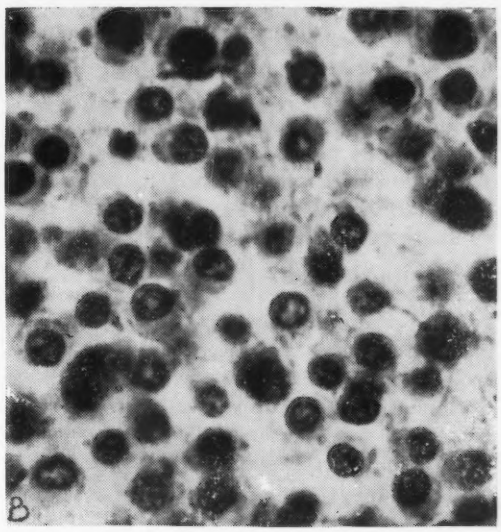
Pseudo-membranous suppurative cystitis.

Ascending pyelonephritis, more marked on the left side.

Chronic suppurative cholecystitis with ancient perforation and formation of a chronic intramural abscess in the 1st portion of the duodenum.

Hemorrhagic bronchopneumonia in the left lower lobe.

Fibrous adhesions about the gall bladder duodenum, liver, and transverse colon.



In a review of 16 cases of multiple myelomas selected from 13,000 consecutive autopsies in the Department of Pathology from the Cook County Hospital only two cases of metastasis to the internal organs was encountered. The organs involved were as follows: both testicles, pancreas (2 cases) liver, and right adrenal. Both patients were white males and their ages were 55 and 62 years. In our case reported, the correct diagnosis was not made, as is so often the case. A more careful clinical examination would have revealed the enlarged firm testicle. This finding together with the presence of a paraplegia might have suggested a primary tumor of the testicle with

metastasis to the spine and compression of the suggested a primary tumor of the testicle with spinal cord by tumor tissue. As a matter of fact the above diagnosis was considered at the autopsy by the pathologist before opening the body. The X-ray of the spine was not of any diagnostic help.

Multiple myeloma is considered a rare highly malignant form of a malignant bone-tumor originating from the plasma cell in the bone marrow. Klemperer (4) called attention that the plasma cell was not an inflammatory cell but rather an abnormal hematic cell whose origin could be traced to the primitive reticulum cell of the bone marrow. Since the plasma cells have been found in the circulating bone-marrow and peripheral circulation, its close relationship to leukemia has been considered. It is best, perhaps, to consider multiple myeloma as a neoplasm and the name plasma cell myeloma would be preferable since many cases have only a single bone involved. There has been some doubt as to the possibility of the myeloma to produce metastasis in soft tissues. However, it is apparent from the various reports in the literature than any organ in the body may be the site of metastasis, either by direct extension of the disease process or by hematogenous route. It is also believed that extra-medullary plasma cell myeloma may occur as the primary site in soft tissues, thus being independent and not secondary to the bone growth. In Ulrich's case (3) both testicles were the site of plasma cell myeloma without any evidence of disease in the bones. This case suggests the possibility of the extra-medullary origin of plasma cell myeloma.

The clinical diagnosis of plasma cell myeloma is still a difficult one to make and is frequently missed. However, if one keeps certain facts of the disease in mind a correct diagnosis will more often be made. These patients are usually past 40 years of age, and the ratio of men to women is about 2 to 1. The tumor is usually soft and light gray. Microscopically the type cell resembles the plasma cell with an eccentric nucleus. The cells are large, round or polygonal and are arranged in dense masses without any intercellular substance. In places the tumor cells may resemble the reticulum cells with a large oval to round nucleus closely simulating the stem cell or the so-called hemocytoblast. Usually there are mutiple skeletal tumors present; however, ony one bone may be involved such as in our case. The flat bones are the ones usually involved, the order of frequency being vertebra, ribs, skull, sternum and clavicle. In our series 45% of the cases with vertebral involvement showed extension into the spinal canal and compression of the cord resulting in paraplegia. Thus in cases with unexplained neurological findings especially paraplegia a myeloma must always be excluded in the differential diagnosis.

The symptoms of plasma cell myeloma may be weakness, pain and backache. The blood proteins are usually high especially the serum globulin. The serum albumin is decreased while the blood calcium may be elevated with a normal or high serum phosphatase. The blood findings may be significant such as secondary anemia with rouleaux formation and circulating myeloma cells in the peripheral blood or bone marrow. Sternal punctures may be of diagnostic aid and should be done more often than is at present. Spontaneous fractures at times may be the first indication of the presence of a myeloma. The Bence-Jones protein in the urine is present in 60% of the cases. These patients may develop amyloidosis followed by nephrosis and azotemia. In one of our cases (4) an amyloid tumor in the sternum was the first indication of an existing multiple myeloma. Often times the X-ray examination of the bones reveals a moth-eaten appearance which is diagnostic of the disease. Finally, biopsy examination of the lesion may reveal the true nature of the disease process.

Summary

A case of a 62 year old white man with plasma cell myeloma in a single vertebra with metastasis to both testicles and the pancreas is presented. The clinical and necropsy findings are given.

Clinically, the tumor in the testicles or vertebra was not suspected during life.

The tumors in the testicles resemble a metastatic lesion and not a local proliferation of cells, and lends support that myeloma is a malignant tumor rather than a disease of the blood forming organs similar to leukemia.

The present report makes the fourth case of plasma cell myeloma of the testicle.

(Continued on page 40)

Book Review

FUNDAMENTALS OF CLINICAL NEUROLOGY. By H. Houston Merritt, M.D., Professor of Clinical Neurology, College of Physicians and Surgeons, Columbia University, Chief of Division of Neuropsychiatry, The Montifiore Hospital. Fred A. Mettler, M.D., Ph.D., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia. Tracy Jackson Putnam, M.D., Professor of Neurology and Neurological Surgery, College of Physicians and Surgeons, Columbia. Ninety-six illustrations, 89 pages. Price $6.00. The Blakeiston Company, Philadelphia and Toronto.

This book has been prepared with a view toward explaining the relationship between the pathology and symptomotology of neurological disorders. A discussion of the basic anatomic arrangements of the various portions of the neuraxis and the fundamental principles of the manner in which they function is preceded by a modern, practical procedure for the examination of the patient.

Proved methods of treatment are discussed, but not lengthily, for the purpose of this book is not to teach treatment but to explain the essential facts which any practitioner of medicine must know concerning the problems of diseases of the nervous system commonly encountered in general practice.

Abstracts

THE OPERATION OF PORTACAVAL ANASTOMOSIS: INDICATIONS, REPORT OF CASES. A. H. Blakemore, M.D., N. Y. State J. M.; pp. 479-85, March 1947.

THE Eck Fistula, anastomosing the portal vein to the inferior vena cava, became widely known after it was first performed in dogs in 1877. This operation as a potential clinical procedure in relieving portal hypertension was noted early, but attempts to perform such anastomoses in the human failed, due to development of occlusion by thrombosis post-operatively.

Since it was well known that far greater difficulty in precision was necessary for intimal coaptation by suture in veins than in arteries and is inherent in any such suture technique, a non-suture method suggested itself for trial.

A small vitallium tube is selected. The portal vein is ligated and cut close to the liver. Its end is then introduced into the funneled end of the tube and passed through the tube and everted or cuffed over the other end. There the cuffed end is tied securely. This is then introduced into the mobilized inferior vena cava in which a cruciate incision surrounded by a purse string suture has been made. The purse string is securely tightened and the end-to-side anastomosis is completed.

A spleno-renal portacaval shunt may also be done after removal of the spleen and left kidney.

The portal hypertension itself in these cases makes secure the patency of the anastomosis.

The indications for such a procedure are first for selected cases of extrahepatic portal block. The surgeon must determine whether bleeding and/or ascites results from the portal block with varices, or from the hypoprothrombinemia and hypoproteinemia resulting from liver damage. In portal cirrhosis, the indications for considering a portacaval shunt are; (1) those cases with adequate liver function but due to fibrotic contraction and periportal fibrosis, severe portal hypertension with ascites and hemorrhage result, and (2) those cases with some liver damage associated with portal hypertension. In the latter group, medical management is tried to see what the liver is able to do in its residual optimal state, to determine just how much of the picture results from the portal pressure itself.

Seventeen patients were operated upon, of which 6 had extrahepatic blocks, 10 had portal cirrhosis, and 1 had thrombosis of the hepatic

veins diagnosed on biopsy. Two died post-operatively. Liver function tests showed improvement in most of the patients and ascites disappeared in the 4 cases in which it was present. Of the 15 surviving the operation 11 are doing well, two who had persistent hemorrhage are somewhat improved, one died from uremia from polycystic renal disease, and one died a year post-operatively apparently from liver decompensation of unknown febrile origin.

* * * *

LACK OF EFFECT OF A DIGITALIS PREPARATION* ON THE BLOOD PRESSURE DECREASE CAUSED BY AMINOPHYLLIN. Jay A. Smith, Department of Physiology and Pharmacology, The Chicago Medical School.

Alterations in the effect of aminophyllin by digitalis preparations was sought, since these drugs are commonly used together.

Blood pressure, respiration, and the electrocardiogram were recorded on 18 dogs anesthetized with ether. Aminophyllin (0.1, 0.2, and 0.4 cc.) and Cedilanid (0.5 cc./kg.) were given by rapid intravenous injection. These doses of aminophyllin caused measurable decreases in blood pressure, and this quantity of Cedilanid caused a depressed ST-segment and, occasionally, extrasystoles. Aminophyllin was injected before and at least 30 minutes after Cedilanid.

The table shows that as the dose of aminophyllin was increased, the fall in blood pressure increased and that the resulting fall was similar both before and after Cedilanid.

In other experiments, larger doses of aminophyllin, injected intramuscularly, gave similar results.

Thus the fall in blood pressure caused by aminophyllin is not altered by Cedilanid.

Cedilanid,	Aminophyllin	
	Dose,	Blood pressure
cc./kg.	cc.	fall, mm. Hg
0.0	0.1	6.4
0.5	0.1	7.0
0.0	0.2	9.7
0.5	0.2	9.2
0.0	0.4	18.8
0.5	0.4	14.5

*Cedilanid, Sandoz Chemical Works, Inc., New York. All drugs were supplied by the Sandoz Company.

EPIDEMIC DIARRHEA IN THE NEWBORN: H. W. Mayes, M.D., F.A.C.S., Am. J. Obst. and Gynec. 53:2, 285-9. February 1947.

THE author suggests that the much feared epidemic diarrhea of the newborn is due to a metabolic disturbance resulting from improper intestinal bacterial flora. Sterile delivery and nursery conditions maye be responsible for this, and breast feeding is believed to be the treatment of choice to establish normal conditions.

The occurence of the 17 cases in Methodist Hospital, Brooklyn, in this series, points to such a basis rather than a contagious origin. Of 143 infants born in September 1945, 81% were both breast and bottle fed, 19% were exclusively bottle fed. It is from this small latter group, however, that 13 of the 17 cases, and 8 of the 9 deaths occurred.

Although this conditions is usually attributed to a virus introduced by a carrier into a nursery, it appears as though beneficial bacteria in the infant's bowels may combat the pathogens producing the disease. The optimal method of introducing these protective bacteria is breast feeding.

The relationship between breast feeding and immunity or recovery from epidemic diarrhea of the newborn merits further investigation in light of this paper.

* * * *

PENICILLIN FOR SCARLET FEVER: A. L. Hoyne, M.D., and R. H. Brown, M.D., Chicago. J. A. M. A. 133-10, 661-3, March 8, 1947.

THE efficacy of penicillin in treatment of streptococcus infections having been demonstrated repeatedly, its use in scarlet fever was undertaken in this series of 548 patients at the Municipal Contagious Disease Hospital in Chicago. Penicilin was the exclusive therapeutic agent used in 116, convalescent serum in 69, sulfonamides in 48, and scarlet fever antitoxin in 2. Three hundred and twelve were treated symptomatically as controls.

The results of this study, in which the cases were admittedly relatively mild as shown by only a single fatality in the entire series, were taken to indicate whether any advantage as a therapeutic measure could be obtained from the use of penicillin. The temperature was not influenced especially by penicillin, although the duration of

the rash was somewhat less on the average.

Based on these observations, the authors state that penicillin is of equal therapeutic efficacy to convalescent scarlet fever serum and superior to sulfonamides in scarlet fever. The chief advantage found with penicillin was the smaller incidence of complications following its use as compared with the other agents. The customary repeated intramuscular administration of penicillin is at present an obstacle to be considered in its use, especially for patients treated at home.

Accounts of the relative value of penicillin against more virulent types of this disease are to be desired in future studies.

The following articles are summaries of lectures given at the Annual Clinical Conference of the Chicago Medical Society held in Chicago on March 4-7, 1947. The abstracts of the lectures here presented represent only a small portion of those given at the Conference. Several more will appear in succeeding issues of The Quarterly.

These articles are prepared from notes of the lectures as taken by A. Sidney Ludwig and J. Marvin Wertheim.

CARDIOSPASM

Dr. Porter P. Vinson, Professor of Bronchoscopy, Esophagoscopy and Castroscopy, Medical College of Virginia, Richmond, Va.

The clinical conditions resulting from cardiospasm are: (1) dysphagia, (2) regurgitation, and (3) associated pulmonary symptoms. The type of dysphagia that results differs from other types in that difficulty is experienced in swallowing solids, semi-solids, and especially liquids. Regurgitation occurs with dilation of the esophagus and this is particularly dangerous at night when aspiration into the tracheo-bronchial tree may occur. Sixty to seventy per cent of these patients have pain resembling that of gall-stone colic and coronary disease.

In this spastic condition, the esophagus is thin-walled with a consricted cardia and so must be differentiated from another esophageal condition in which the lower one-half or two-thirds of the esophagus is spastic. The therapy usually employed in true cardiospasm is not effective here.

Therapy in true cardiospasm is accomplished either by passage of a sound through the esophagus and cardia, or by hydrostatic dilation of these parts. In treatment, the exact position of the sound or hydrostatic dilator must be known. When the instrument is in the proper position the patient invariably feels pain, thus verifying the location of the spasm as estimated by the clinician. In ten per cent of the cases the spasm is relieved by simple passage of a sound; the other ninety per cent are relieved by hydrostatic dilation. Of the latter, seventy-five per cent have never been troubled again, while the remaining twenty-five per cent are relieved but require repeated dilation until complete relief of the dysphagia is effected. The dysphagia is always successfully treated and relieved—by either one or more dilations—but the pain of the cardiospasm may still persist. A gain of weight always follows relief of the spasm. Surgery, in most cases is unnecessary, but on rare occasions surgery is used to dilate the esophagus from below the stomach.

* * *

FUNCTIONAL DISORDERS OF DIGESTION

Dr. C. T. Stone, Professor of Medicine; Chairman of Dept. of Medicine, University of Texas, Medical School, Galveston, Texas.

Psychosomatic medicine is the study of visceral expressions of emotional instability. In World War II approximately one-third of all the disorders were neuropsychiatric in origin. Such disorders are due to a state of anxiety, neurasthenia, and even a sudden conversion such as shellshock.

More than one-half of the patients complaining of gastro-intestinal disturbances have no actual organic disease, although abnormal function may persist. It is therefore the physician's duty to delve into the patient's emotional life and extract the cause of the disorder and then administer therapy accordingly.

Abdominal organs, due to their automatic nerve supply carrying stimuli from the central nervous system, are good indicators of emotion, and in this manner emotional instability may well affect organ function. Psychoneurotic patients can have aberrant function of the G.I. system which may simulate those of organic origin and may even cause serious nutritional changes affecting the individual's vocation.

CORRELATION AND RESEARCH SEMINAR

Among the additions to the activities offered by the Chicago Medical School this year, will be a Correlation and Research Seminar. As outlined by Dean Sheinin at a recent meeting, the seminar will meet four times a month for hourly meetings of interested faculty and students of both our School and the University of Illinois School of Medicine. One meeting will be assigned to the Journal Club for the presentation of summaries of recent papers in various fields of interest. Another hour each month will feature lectures given by speakers invited by the Committee in charge of the seminar, while a third meeting will be devoted to the presentation, discussion, and correlation of research problems. The fourth period each month will be left open to permit attendance of scientific meetings of the University of Illinois and to prevent conflicting dates of the other three meetings. The schedule for the autumn quarter follows.

October 1 Public Health Research Seminar. "The Use of B.C.G. Vaccine against Tuberculosis." Dr. I. S. Neiman.

October 15 "Modern Trends in the Treatment of Peripheral Vascular Disease." Dr. D. Abramson, Associate in Medicine—Michael Reese Hospital.

October 22 Physiology Journal Club. "A Report on the Fourth International Cancer Congress." Dr. P. P. Fea.

October 29 Orthopedic Surgery Research Seminar. "Physiology of the Vascular System in Orthopedics." Dr. D. Miller.

November 12 "Cirrhosis of the Liver." Dr. E. F. Foley, Professor of Medicine—University of Illinois.

November 19 Basteriology Journal Club. "The Chemical Nature of Basterial Antigens, particularly the Nature of the Teterophile Antigen." Dr. G. J. Scheff.

November 26 Physiology Research Seminar. "The Paradoxial Effects of Antigonadodrophic Hormones." Dr. H. W. Kupperman.

December 3 "The Problem of Alcoholism." Dr. A. J. Carlson, Professor Emeritus of Physiology—University of Chicago.

December 17 Anatomy Journal Club. "Two Recent Physical Aids in Microscopy." Dr. H. Fish.

A typical case was that of a woman with a history of dysphagia than began when she lost a child in the hurricane of 1900. Her dysphagia was of such nature that she ingested only liquids, and these took five hours to be completely swallowed. Her physical history was all negative and she presented a picture of a healthy female. The physicians refused to treat her cardiospasm with dilation because it was a psychic memorial to her lost child. The woman grew progressively worse due to her diet and died in 1938 of bronchopneumonia. Such psychoneurotics present a typical picture to the trained eye of a physician and should be readily recognized.

* * * *

CARCINOMA OF THE UTERUS

Dr. Norman F. Miller, Professor of Obstetrics and Gynecology; Director, Dept. of Obstetrics and Gynecology, University of Michigan, Ann Arbor, Michigan.

The prevalence of carcinoma of the uterus among our women today reflects the inadequate care and delay in effective diagnosis afforded by the medical profession.

Three methods of treatment which can be used in early cases of carcinoma of the endometrium, and which account for ninety-five per cent of the cures in clinical groups of patients, are: surgery, radiation, and a combination of both.

Mortality resulting from carcinoma of the uterus is due more to a lack of early treatment than to a lack of better treatment. Although we cannot prevent cancer, we can minimize the effects of it and thereby reduce the mortality by waging anti-cancer programs in conjunction with informative educational programs. Moreover, patients over forty should be thoroughly checked every six months, and the clinician should be suspicious of everything, especially of those patients who "spot". In all suspicious cases, biopsies,—either endometrial or cervical—should be performed without hesitation. The breast should always be palpated and the cervix carefully examined for lesions. Cervical lesions, if present, should be treated until complete cure has been effected.

New Books in the Library

Burroughs Welcome Co. The vitamimns. c1944 (booklet). 5N B94.

Bush, V. Science, the endless frontier. 1945. 1G 890.

Denny-Brown, D. E. Diseases of the basal ganglia. c1946. (Gift of the Quarterly.) 19 E D 42.

Directory of social agencies of the City of New York. 1940. c1939. 38 Soc 1 N. Y.

Hyman, H. T. An integrated practice of medicine. c1946-47, 4 vol. & Index vol. 7 A H 99.

International health conference, 1946. 1946. 41 Iin 8.

McCarrison, Sir Robt. Studies in deficiency diseases. 1946. 13 S McC 13.

Merritt, Mettler & Putman. Clinical neurology. c1947. (Gift of the Quarterly.) 19 E M 55.

Metropolitan Life Ins. Co. 12 American health heroes. c1946. (booklet). 32 As M 56.

Mikell, W. E. Illustrative cases on criminal law. 1915. (Gift of Dr. Dorland). 34 B M 58.

Novak, E. Gynecological & obstetrical pathology, 2d ed., 1947. (Gift of the Quarterly.) 24H N 85.

Ranson & Clark. Anatomy of the nervous system. 8th ed. 1947. 19 B R 17.

Rockefeller Institute for Medical Research. Studies, vol. 130, 1947. 1 J Ro 8.

Svensson, R. Handbook of malarial control. c1945. 10 S Swe 2.

Taber, C. W. Dictionary of gynecology and obstetrics. 1944. (Gift of Dr. Dorland.) 24 Ad T 11.

Thewlis, M. W. Care of the aged. (Geriatrics) 5th ed. 1946. (Gift of the Quarterly.) 13 P T 34.

Yearbook of eye, ear, nose and throat, 1946. 6 G P 88.

BOOKS — A GIFT FROM

DOCTOR W. A. NEWMAN DORLAND.

Adams, J. H. Life of D. Hayes Agnew. 1892. 1 Ea Ah 6a

Anspach, B. M. Gynecology. 5th. c1834. 24A An 7

Cole Chemical Co. Diagnostic endocrine syndromes. 2d ed. 1931. 14 L C 67

Croskey, J. W., comp. History of Blockley (Phila. Gen'l. Hosp.) 1929. 39 Ah C 88

Dutton, W. E. Intravenous therapy. Application to medicine. 1924. 22 Z D 95

Encyclopedia sexualis, ed. by V. Robinson. 1936. 2 H En 1

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New Books

Gould & Pyle. Anomalies and curiosities of medicine. 1897. copy 2. 6 E G 73

Henry, F. P., ed. History of medical profession of Phila., 1897. 1 F H 40

Illinois blue book of biography. 1916. 1 E Ill 6

Jarcho, J. Postures & practices during labor among primitive peoples. 1934. 25 M J 28

Kelly, H. A. Gynecology. c1928. 24 A K 30

Liederman, E. E. Muscle building. c 1924. 22 S L 62.

Liederman, E. E. Secrets of strength. c1925. 22 S C 62

Miller, C. J. Clinical gynecology. 1932. 24 D M 62

Miller, C. J. Introduction to gynecology. 1931. 24 A M 62

Riesman, D. Story of medicine in the Middle Ages. 1935. 1 Fe R 44

Skrainka, P. Medical information in sickness & health. 1929. g G Skr 6

NEW JOURNALS

American journal of Medicine, vol. I.
Journal of gerontology, vol. 1.
Cancer research.

NEW BOOKS

Averill, L. A. & Kempf, F. C. Psychology applied to nursing. 2d ed. 1944. 43 D Av 3

Bailey, Buchanan & Bucy. Intracranial tumors of infancy & childhood. c1939. 26 K B 15

Bogompletz, A. A. Prolongation of life. c1946. 13 P B 63

Brock, S. Injuries of the skull, brain & Spinal cord. 2d ed. 1943. 19 J B 78

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TESTICLES—

(Continued from page 32)

REFERENCES

1. Porchownik, J. B.: Ein Fall von Multiplem myelom (Plasmocytom). Virchows Arch. f. path. anat. 280: 534, 1931.
2. Ghon, A., and Roman, B.: Ueber pseudoleuk amische and leukamische Plasma-Zellen-Hyperplasie. Folia haemat. 15: 72, 1913.
3. Ulrich, H.: Multiple Myeloma. Arch. Int. Med. 64: 994, 1939.
4. Klemperer, P. Beitr. Z. path. Anat. u.z. allg. Path. 67, 492, 1920.
5. Rosenblum, A. H., and Kirshbaum, J. D. Multiple Myelomas with Tumor-like amyloidosis. J.A.M.A. 106: 988, 1936.

— MEDICAL TID-BITS —

A hundred years ago the Boston Dispensary, with no trace of self-consciousness, classified its patients racially as Bostonians, Americans, Hibernico-Americans, and Other People.

—New England J. Med.

Trophic loss of neurones like that of scalp hair or of hair pigment has a familial pattern and pace, and is independent of the state of the arteries. The skin, hair, and brain determine how old we look and act, so that a man may truly be said to be as old as his ectoderm.

—New York State J. Med.